Our annual Buzz Issue, sampling the spicy new technologies on the tip of everyone's tongue:

- **De-perimeterization**
- **Desktop Linux**
- **Mobile data services**
- **Infranets**
- **Business services management**
- **Multi-core processors**
- **Grid storage**
- **Managed VoIP**

and more, beginning on page 67

NETWORK WORLD'S Famous

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WHAT THIS MAGAZINE IS COVERING UP.**

The new stud on the server farm.

Presenting the new Xserve G5, a wickedly fast, extremely compatible and refreshingly affordable 1U server from Apple.

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And it comes complete with Mac OS X Server, Apple's UNIX-based operating system that provides a complete suite of standards-based network services with no per-client fees. So whether you have Mac, Windows, UNIX or Linux clients, Xserve is ideal for cross-platform file sharing, hosting dynamic websites, streaming audio and video and running powerful J2EE applications – right out of the box.

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THE BUZZ ISSUE

Our annual sampling of the hot new technologies on the tip of everyone's tongue.

Page 67.

Cover photo:
Aaron Goodman

AARON GOODMAN

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Exclusive

Network World Fusion Radio: Symantec's Internet Security Threat Report

Symantec this week released its semi-annual Internet Security Threat Report and the numbers are not good. Joining us to discuss the findings is Dean Turner, executive editor of Symantec's report. **DocFinder: 3946**

Network Encyclopedia

Get definitions for the technologies, hardware, protocols, standards and more behind networking. **DocFinder: 5548**

Topic notes

Our topic-specific news pages now not only have the latest news and research you need, but they also now feature analysis and commentary from our staff who know the areas best. For instance, this week Senior Writer Denise Dubie looks at a business policy effort that aims to develop a common structure of an application and the underlying services that define it from a technical perspective. **DocFinder: 3947**

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Columnists

The Wireless Wizards

QoS and voice over Wi-Fi
The Wizards answer a reader who asks: "With more than enough bandwidth available, would QoS be critical to implement for voice over Wi-Fi applications?" **DocFinder: 3948**

Telework Beat

Rethinking the American Dream
Net.Worker Managing Editor Toni Kistner looks at a study that shows our priorities are "out of whack." **DocFinder: 3949**

Small-Business Tech

Confusion over backing up XP, Part 2
Columnist James Gaskin says Microsoft's clarifications raise more questions. **DocFinder: 3950**

HomeLAN Adventures

Becoming a better back-up citizen
Editor Keith Shaw says if vendors make the software simpler, maybe more of us will use it at home. **DocFinder: 3951**

Seminars and Events

Weekly Webcast Newsletter

Our weekly newsletter delivers information on Webcasts on Network World Fusion — your 24-7 source for solutions and strategies, with links, resources and answers you need. Covering topics such as security, applications and wireless, our Webcasts are focused, single-topic briefings from technology experts. **DocFinder: 2542**

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News

Call center services on the horizon

Sprint, Verizon set to join others in offering hosted services that could cut capital, operating costs.

■ BY TIM GREENE

Verizon and Sprint are gearing up to offer IP-based hosted call center services that promise to reduce costs and ease contact center management.
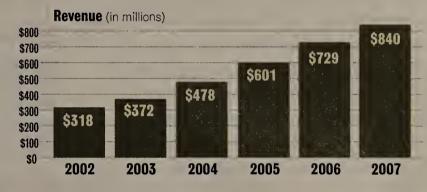
Both carriers plan by mid-2005 to offer hosted call center services for customers that want to outsource the application infrastructure needed to support their own call agents. Applications include automatic call distribution, interactive voice response, call control, monitoring and customer-history databases. Customers provide the agents, phones and PCs. Customers could buy as many or as few applications as

they wanted and retain control of the rest.

The services would let agents make and receive phone calls accompanied by screen displays of customer records, and let supervisors monitor call status and productivity of the agents, who can be located in virtually any geographic area. Because the services will be IP based, they can blend voice and text communications between agents and customers.

Verizon plans to charge roughly what customers pay now for inbound toll-free-number service callers used to reach the centers — just a portion of the total bill for contact centers that businesses run themselves.

Call center growth

Hosted call center revenue in North America will grow significantly over the next few years, according to Datamonitor.

Revenue (in millions)

2002	2003	2004	2005	2006	2007
$318	$372	$478	$601	$729	$840

Corporations would avoid the capital investment in servers and switches, which can top $1 million, and the associated operat-

ing costs, Verizon says.

By this time next year the company hopes to have 20 to 30 customers of the service, which is directed at the top 400 largest call centers in the financial, insurance and healthcare businesses, and state and federal government, says James Tiller, vice president of application services for Verizon's Enterprise Solutions Group.

Sprint says it plans to charge per call agent, with the price per agent depending on the number of applications they outsource. The sweet spot for these services will be small and midsize businesses, says Dorene Weiland, senior director of voice and collaborative services for Sprint.

Over time larger companies will embrace hosted call centers, says Robin Goad, senior analyst with Datamonitor. "At the moment it's more suitable to smaller enterprises that don't have to invest in the equipment," Goad says. "In theory, though, enterprises of all sizes should be able to benefit from this."

The North American demand for these services is projected to grow significantly (see graphic, above) over the next few years. As customers gain confidence in them and as existing corporate-owned call center gear ages, IT executives will be forced to decide between another round of in-house equipment and buying this type of service, Goad says.

The market for these services is dominated by relatively small providers, such as Echopass, Five9 and White Pajama, focused strictly on contact centers. West Corp., is a more diversified provider, and MCI is the largest U.S. carrier that currently offers these network-based services, Goad says.

Pricing is generally calculated on a per-agent-per-month basis, within a range of $150 to $400 per agent, depending on the number of agents and how long customers sign on for the service, providers say.

Upfront costs slashed

The upfront cost difference between buying equipment and buying a service is dramatic, customers say. Start-up medical support center MediCall in Pleasanton, Calif., avoided a $2 million investment in equipment, IT staff and software by using Echopass' service, says MediCall CEO John Chess. Instead, the company had to come up with about $10,000 to set up its initial call center with 10 agents, he says.

MediCall had to supply only the agents, their phones, their PCs and a T-1 link from the call center in Manila to the Echopass network operations center in Salt Lake City.

If the company wins a new contract to support another medical product, it can add more agent seats more quickly than if it had to do it itself. "We can ramp up to meet a large order. We might not be able to expand the technical capabilities on our own to meet the customer's needs," Chess says.

Start-up Application Center Technology (ACT) in West Palm Beach, Fla., which performs contact center duties for mortgage lenders, spent about $300,000 for hardware and software to support up to 125 agents in-house (the company actually had only 20 agents but left room to grow), says Kevin Krauss, ACT's director of IT.

Wireless sensor networks grabbing greater attention

■ BY JOHN COX

ROSEMONT, ILL. — Amid the venture capitalists, engineering wizards and marketing gurus at last week's Wireless Sensing Solutions conference were two State Farm Insurance employees on a mission to learn about the event's namesake technology.

Ted Dorner, data center manager for a large insurance company in Alpharetta, Ga., and Mark Clauss, an accounts payable superintendent at the home office in Bloomington, Ill., both serve on a task group that weighs the possible effect of emerging technologies on the company and its customers.

They said the possibilities of wireless sensor networks — meshes of tiny monitoring and measurement devices with battery-powered radios — are intriguing.

"Costs are always an issue for an insurance company," Clauss said. "Are there ways we can reduce the number of losses or the dollar amount of those losses" by using wireless sensors?

Imagine using sensors to detect the building up of creosote in a chimney before a fire could be ignited or the falling temperature of a water pipe before it burst, Clauss said.

Clauss cautioned that there would be plenty of privacy, standards and other issues to think about before getting to that point.

Dorner agreed: "We're just doing pure research right now."

Plenty to choose from

There's plenty to do research on these days when it comes to wireless sensor networks, as was evidenced at the show. New products, many from startups such as Cirronet, Crossbow Technology and Dust Networks (see related story, page 25), are plentiful.

A growing number of products are based on an emerging specification from the 100-member strong ZigBee Alliance. Several vendors now offer "ZigBee-ready" radio chipsets and protocol stacks.

Another forum that is expected to support wireless sensor networks is in the works as well. Boston University last week announced the planned Nov. 12 launch of the Sensor Network Consortium, a partnership of universities and vendors pledged to sponsor research and development and facilitate the growth of the sensor network industry. Founding members include L-3 Communications, Sensicast, United Technologies and Honeywell International, whose CTO for the automation and control solutions group was the keynote speaker at last week's conference.

Honeywell, like other process and industrial controls companies, is recasting product lines with

News Bits

Fiorina sees no 'fourth-quarter budget flush'

■ Not expecting a rush of IT spending during the last three months of the year, HP Chairman and CEO Carly Fiorina said last week that IT buyers have become smarter and more discriminating in their IT purchasing than they were five years ago. She added that they now realize that technology spending sometimes can be a "bad thing." Speaking to financial analysts at the Banc of America Securities Investment Conference in San Francisco, Fiorina dismissed the idea that corporate budget surpluses would drive an IT spending increase in the fourth quarter. "For each of the last three years and certainly this year as well, there's been a lot of talk that we're going to see a fourth-quarter budget flush," she said. "I just don't see it happening ... because customers have gotten a lot more sophisticated."

Microsoft offers source code to governments

■ Microsoft last week said it would give governments access to the source code for Office 2003, one of the company's two primary revenue generators, as part of its nearly 2-year-old, no-fee Government Security Program. The shared source offer, which is similar to a program to share Windows desktop source code, gives national governments and international organizations access to source code and technical information about Office 2003. Microsoft said the British government, one of its most loyal overseas customers, is among the first participants. The move comes at a time when Microsoft is coming under increasing pressure from open source software, especially OpenOffice. Governments in Germany, Hungary, France, Italy and just last week Iran have either adopted or are seriously considering open source projects.

Card processor hit by DDoS attack

■ Card-payment processor Authorize.Net, which provides an Internet gateway for credit- and debit-card authorizations on behalf of 100,000 merchants and their online shopping customers, last week suffered a crippling distributed denial-of-service attack for several days from an unknown source. The distributed DoS attack, which disrupted Authorize.Net's payment processing and strained the resources of its customer support center, was reduced to an intermittent network delay by last Wednesday. Lightbridge, which owns Authorize.Net, received a demand for money associated with the distributed DoS attack, said spokesman Glenn Zimmerman. While Lightbridge was not at liberty to

"Welcome to Programming Your Microsoft Windows VCR and Microsoft TV Remote. This is the first of five videos on how to stop the incessant blinking 12:00 and record TV programs."

Layer 8

Bryan Zabchuk of Ottawa, Ontario, won Fusion goodies for providing the above. You can win, too. Visit Layer 8 every Monday for the start of a new contest. www.nwfusion.com/weblogs/layer8

■ TheGoodTheBadTheUgly

Smell phones. Siemens researchers have developed tiny sensors that they say could be used to detect gases and smells. One possible application: Cell phones that tell you if your breath stinks. ➤

BRIAN GAIDRY

Irish eyes aren't dialing. Ireland's telecom regulator said last week that it was taking "extraordinary" measures to protect Internet users from rogue autodialer programs by suspending direct dialing to 13 countries, most of which are South Pacific islands. The autodialer programs hijack modems and run up long-distance phone charges. The regulator's response comes after hundreds of consumer complaints about the scams.

Bill's beta test. Gartner Vice President and Research Area Director Vic Wheatman, speaking on the topic of network security, had this to say last week about Microsoft's software efforts: "We've been in the biggest beta test in history, and this test is still going on: It's called Windows."

provide details about the possible attackers or the extortion because it is working with the FBI to investigate the crime, Zimmerman said the firm did not bend to the attacker's demands for money. Lightbridge said it will also quickly be deploying technologies aimed at mitigating distributed DoS attacks.

Oracle extends PeopleSoft offer

■ Oracle has again extended its $7.7 billion cash offer for PeopleSoft. Shareholders now have until Oct. 8 to tender their shares. Last week's extension came two weeks after a federal judge in San Francisco sided with Oracle by ruling that an acquisition of PeopleSoft would not be anti-competitive. The Department of Justice sought to block the hostile takeover on those grounds and battled Oracle during a four-week trial in June. Oracle is offering $21 per share. The offer has been extended several times already and was set to expire on Sept. 24. PeopleSoft is fighting Oracle's takeover attempt as its board of directors has unanimously rejected each of Oracle's offers as inadequate.

Former CA head pleads not guilty

■ Former Computer Associates CEO Sanjay Kumar pleaded not guilty last week to charges of securities fraud and obstruction of justice stemming from a two-year investigation into accounting fraud at the software company. Kumar's arraignment in U.S. District Court in Brooklyn, N.Y., came after the company agreed to pay $225 million to past and current shareholders to settle charges the company improperly booked $2.2 billion in revenue. Stephen Richards, CA's former head of worldwide sales, also pleaded not guilty last week to fraud and obstruction charges. Kumar denied any wrongdoing in a statement issued by his attorneys and said he expects to be exonerated. CA's former general counsel and senior vice president, Stephen Woghin, pleaded guilty last week to similar charges for his role in what the government called a company-wide accounting fraud scheme.

Commerce One may file for bankruptcy

■ Commerce One, a provider of supplier-relationship-management technology and former high-flyer during the dot-com boom, said last week that it might file for bankruptcy. The company said in filing with the Securities and Exchange Commission that operating expenses continue to outpace cash flow, and that it has about $700,000 left on hand. "We're currently considering our alternatives, including a significant reduction or discontinuation of our operations, other expense reductions, and/or a sale of all or a portion of our assets. We are currently pursuing discussions with potential buyers of our assets, including our supplier-relationship-management business," the company said in its filing.

IBM sheds light on next Notes/Domino

■ BY JOHN FONTANA

IBM/Lotus is stepping up efforts to reassure users that its Notes/Domino collaboration platform isn't on the chopping block and will survive well into the future.

The company says it will release Notes 7.0 by mid-2005 and that customers will find a natural integration between Notes/Domino and Lotus Workplace, a collection of collaborative components that run on WebSphere, the DB2 database and Java 2 Platform Enterprise Edition (J2EE).

Lotus also says the 2.5 release of its Workplace client, which is due to ship later this year, will include native access to Notes applications. For application development, the company says it will preview a development model and tool set that align with existing development tools familiar to Notes/Domino developers.

"The path to Workplace for Notes/Domino customers is to adopt the successive version updates in the Notes/Domino road map," says Ken Bisconti, vice president for Lotus Workplace products. He says the road map will include Notes 8, 9 and 10. "Customers can expect that the Workplace technologies will be incorporated into the Notes/Domino road map."

For example, the first support of IBM DB2 as an optional data store for Notes/Domino comes in Version 7.0, and lets users store Domino data and applications in the database. But

Bisconti was quick to note Domino's native NSF data store will exist as long as Notes/Domino does.

The database option also gives Lotus an edge on rival Microsoft, which earlier this year again delayed plans for a database back-end for a future version of Exchange.

Also in 7.0, Lotus is further integrating Workplace component technologies such as instant messaging, which was first integrated with e-mail in Notes 6.5., but in 7.0 supports calendaring and scheduling.

Lotus said earlier this year that Notes 8 would become a client-side component that runs within the larger Workplace framework.

"If you are sitting in a Notes environment, the message is comforting and clear about what you should do," says David Marshak, an analyst with the Patricia Seybold Group.

The difficult part is where users should jump into Workplace, Marshak says.

"If I have Domino, how do I add to it? Do I use components? Those individual decisions are still difficult," he says.

Lotus is hoping to refine its Notes evolution message given customer anxiety over Workplace and in light of discouraging market data. A report earlier this year by the Radicati Group predicts that over the next four years Lotus will lose market share as the Workplace platform is under development. Radicati says Lotus' market share will fall from 24% to 17% in 2008, while Microsoft's will grow from 31% to 33%.■

Lotus road map

IBM/Lotus is plotting upgrades to Notes/Domino and Lotus Workplace, a collection of collaborative components that run on WebSphere and J2EE.

Oct.-Dec. 2004	Lotus Workplace 2.5
	Notes/Domino 7.0 Beta 3
	Notes/Domino 6.5.3
January-March 2005	Notes/Domino 7.0 Beta 4
	Notes/Domino 6.0.5
	Notes/Domino 6.5.4
April-June 2005	Notes/Domino 7.0 release
	Lotus Workplace 3.0
July-September 2005	Support ends for Notes/Domino 5.0.

Notes/Domino code streams simultaneously.

Microsoft debuts Exchange health analysis tool

Microsoft last week released a free configuration management tool designed to help Exchange administrators gauge the health of their messaging infrastructures.

The Exchange Server Best Practices Analyzer Tool performs automated configuration checks and problem diagnosis. It works with Exchange Server 2000 and 2003, and with Exchange 5.5 as long as it is deployed with Active Directory.

"It's a kind of an engineer-in-a-box that shows how to best set up and configure Exchange," says Wayne Ashton, group product manager for Exchange.

The tool, which does not rely on agents, collects 1,200 configuration settings and compares them against a database of 800 rules governing best practices for deployment. A baseline feature lets

companies compare servers against their standard configurations.

The tool relies on best practices information collected from Microsoft's knowledgebase and support services, partners and Microsoft's own internal IT group. The data is collected at regular intervals from Microsoft's Web site, allowing offline use of the tool.

Microsoft plans to eventually make the tool a feature of Exchange and of the Exchange management pack for Microsoft Operations Manager, a monitoring and performance tool.

The Best Practices Analyzer takes approximately 5 minutes to scan a single Exchange server, according to Microsoft officials, and can scan up to 50 machines at a time.

— John Fontana

Anti-spam group disbands

■ BY JOHN FONTANA

The group working on a standard designed to help slow the onslaught of spam imploded last week amid intellectual property issues and in-fighting, but the co-author of the specification says he will introduce a new one shortly that he hopes will sidestep such issues.

The MTA Authorization Records in DNS (MARID) working group at the IETF was abruptly terminated last week along with its standards work on the Sender ID protocol, which was designed to curb spam and phishing attacks by validating e-mail senders.

The Sender ID draft technical specification combined Microsoft's Caller ID technology and the Sender Policy Framework (SPF), authored by Meng Weng Wong, the founder of Pobox.com.

Wong says he has written and is already testing a new specification called Unified SPF designed to solve the disagreements that doomed MARID.

"In the working group, people couldn't agree on the most basic things," Wong says. "We had to come up with an agreement on what [sender] ID to check."

In a posting to the working group's mailing list last week, Ted Hardie, applications area director at the IETF, backed Wong's assessment of the deadlock within the group and said "the working group participants have had fundamental disagreements."

Wong says the working group polarized into three camps, each dedicated to their own ID proposal and unwilling to compromise. Two of the proposals, the "HELO domain" and "return path," refer to technology that is part of the SMTP envelope included in every e-mail. The third was Microsoft's "purported responsible address" (PRA), which refers to technology that would be part of the e-mail header.

Wong says his new Unified SPF will support all three proposals. "As soon as I can I will publish Unified SPF, and hopefully we will get a Phoenix to rise from these ashes. I am going to try to satisfy

Microsoft's desires while also satisfying everyone else's," he says.

Trouble with Sender ID began a few weeks ago over Microsoft's licensing requirements for its patent pending PRA algorithms used within Sender ID to validate a user.

Open source advocates say the royalty-free license was incompatible with their own licensing formats.

The controversy seemed to be eliminated last week when Andrew Newton, co-chair of the working group, sent an e-mail to the group's mailing list saying Sender ID would provide extensions for "non-encumbered" algorithms and saying the group hoped to have a new schedule to proceed as soon as possible. Just more than a week later that schedule was no longer needed, as the working group was shut down.

Meanwhile, Wong's Unified SPF was already written when the working group was active, but he says co-chairs Newton and Marshall Rose asked him not to introduce it because there were already so many proposals before the group.

Newton says he had no comment beyond the formal statement issued by the working group. The statement encouraged developers of similar e-mail validation protocols to test their specifications in the real world to provide a testing ground for what will work and what won't.

"Now that the working group no longer exists, I will move ahead with Unified SPF," Wong says.

Microsoft declined to comment, but a source close to the company says it views the working group's demise as a way for the industry to test technologies that Microsoft thinks will ultimately lead to a solution to curb spam and phishing.

Dave Crocker, principal at consulting firm Brandenburg InternetWorking and a participant in the disbanded working group, says he will continue his work on Client SMTP Validation, which is before the IETF.

"This thing is not dead, but this particular activity is off the standards track," he says.■

Security vendors harden products

■ BY ELLEN MESSMER

Security companies this week are trotting out intrusion-prevention system and vulnerability-assessment products that not only widen customer choice but also indicate growing multi-vendor collaboration.

McAfee is expected to announce the IntruShield 1400, a new model in its IntruShield IPS appliance line. The four-port, 200M bit/sec appliance is a midrange IPS that detects and blocks attacks in the same way as IntruShield's 100M bit/sec 1200 model, 600M bit/sec 2600 model and 2G bit/sec 4000 model. According to Vimal Solanki, McAfee's director of product marketing, the IntruShield 1400, which costs $15,000, is intended for midsize businesses and branch offices.

McAfee also is set to announce that its ePolicy Orchestrator man-agement console, which can consolidate security event information related to the McAfee desktop firewall, host-based IPS, spam activity and even rival Symantec's anti-virus software, now also will be able to share collected data with IBM's security management software, Tivoli Risk Manager. IBM says about 70 products from various vendors have this capability.

Another IPS vendor, ForeScout Technologies, this week is expected to announce an updated version of its WormScout appliance, typically deployed on LAN segments to deny network access to worm-infected computers.

The WormScout 4.0 appliance can detect e-mail worms in addition to network-borne worms, says Ayelet Steinitz, ForeScout's product marketing director. In addition, WormScout 4.0 includes the open source Nessus vulnerability-assessment tool.

V-Secure's intrustion-prevention appliance, V-Secure 6.4, features a new management console.

Nessus reports on security holes in WormScout so that the appliance, which now has a built-in firewall, has the option of opening or closing firewall ports based on policy.

WormScout 4.0, priced starting at $12,000, also will have optional software plug-ins for disabling switch ports and integrating with BMC Software's Remedy trouble-ticketing system.

Meanwhile, teaming among security vendors continues at a fast clip.

Vulnerability-assessment product vendor nCircle is making changes to its IPS360 scanner appliance, adding an optional module called nCircle nTellect that will allow for correlation of known network exposures with intrusion-detection data that the Cisco IDS sensor collects.

This ability to share vulnerability information continuously with the Cisco IDS makes the sensor more efficient in presenting the threat information most pertinent to a corporation's security managers, says Abe Kleinfeld, nCircle president and CEO. IPS360 is priced starting at $35,000 and the nTellect option would add $20,000 to the price.

A handful of firms, including Internet Security Systems and Sourcefire, are working to combine vulnerability-assessment data with attacks picked up by an IDS sensor in order to pinpoint high-threat attacks and weed out irrelevant attack information.

At Kansas City, Mo., energy firm Aquila, which is beta-testing nCircle's nTellect with Cisco IDS, communications engineer Tim Raines says the scanning data has made IDS "much more usable and easier to tune."

V-Secure Technologies, which sells the V-Secure IPS, this week is expected to announce Version 6.4 of its 250M bit/sec appliance will be managed by a new console, called NetVisor.

The console will be able to control up to 30 of the updated IPSs rather than one, as was the case with the previous version. Pricing ranges from $12,000 to $55,000 for the V-Secure IPS models. In addition, V-Secure says it is working to have its IPS correlate security events with host-based IPS software vendor Sana Security.

Finally, a security start-up called The Barrier Group is making its debut with a security appliance called Barrier1, which combines multiple open source security technologies — including the Snort IDS, Clam-AD anti-virus software, Spam Assassin anti-spam software and Squidguard Web content filtering — into one 3G bit/sec appliance.

Three Barrier Group appliance models, which cost between $67,200 and $117,600, also are being leased as a service for monthly charges that range from $4,000 to $7,000. Rob Demopoulos, CTO and co-founder, says his company brings to the package proprietary IPS code and the recipe for combining about two dozen open-source technologies.

Diversico Industries, a small tools fabricator in Minneapolis, uses Barrier1. Previously, the company had ongoing virus problems and had its servers broken into several times.

The situation has improved using Barrier1, and "at this point, I can say I feel confident about using open source," says Todd Woyke, an engineer with the firm. ■

Ford signs up for 50,000 VoIP phones

■ BY DENISE PAPPALARDO

Ford Motor Co.'s decision to pay SBC $100 million to deploy and manage a network of 50,000 VoIP phones is being touted by the carmaker as a money saver as the carrier plays up its entry into the heavyweight division of VoIP vendors.

The Ford deal is believed to represent the second-largest such deployment in the U.S., behind only Boeing and its 60,000 VoIP phones.

The contract is huge for SBC, which has many managed VoIP customers but none with more than about 10,000 phones, says Brian Buffington, executive director of managed services at SBC.

More online!

"It's a big VoIP deployment in itself, but this is only a small part of Ford," says Mark Winther, group vice president and general manager for worldwide telecom at IDC. This deal only covers Ford's southeastern Michigan offices. When Ford adds in its national and international offices the deployment could be huge, he says

Ford sees the deal helping its bottom line.

"The immediate benefit is going to be efficiencies in cost and operations related to moves, adds and changes," a Ford spokeswoman says. The car manufacturer would not comment on how many other carriers it considered before selecting SBC.

SBC will have a "large team of folks but we can't say how many" and will manage the network from within Ford's facility, Buffington says. SBC was reluctant to offer details about Ford's deployment.

SBC is providing Ford with a customized version of its PremierServ-IP Telephony Advantage platform, which is based on Cisco gear.

"In the case of Ford, it is such a large installation we'll have network engineers and technicians

Putting the pedal down

Ford's rollout of

50,000

VoIP phones will stand second in scope to only Boeing's 60,000, according to industry watchers.

on-site," Buffington says. SBC will fully manage the installation, which includes VoIP phones in 110 offices in southeastern Michigan and Ford's headquarters in Dearborn, Mich. The carrier also will manage and monitor the network daily.

SBC is using Cisco CallManager clusters to support the phones. The clusters will be deployed in centralized data centers managed by the carrier. Ford is using SBC's GigaMan metropolitan Ethernet service to connect multiple locations to its data centers.

The VoIP system uses a proprietary Cisco technology called Survivable Remote Site Tele-phony (SRST) on the routers deployed at Ford's remote sites. If the router detects the IP link is down, SRST automatically contacts the CallManager at the data center over the public switched telephone network, therefore maintaining connectivity. This lets users avoid downtime simply because they might have lost IP connectivity.

As Cisco's CallManager currently does not support the IETF's Session Initiation Protocol (SIP), the phones that Ford initially will deploy are based on Cisco's Skinny Client Control Protocol, which is a proprietary version of the ITU's H.323 standard. Cisco says Ford is interested in SIP and plans to use products based on the specification in the future.

Ford has used SBC Centrex services since 1986, so the company does not have a large staff of telecom experts, Buffington says.

The VoIP deployment, which is expected to begin within the next couple of months and stretch into 2007, will be used with the Centrex service for some time.

Network World Senior Editor Phil Hochmuth contributed to this story.

Wireless carriers state case for directory

BY GRANT GROSS

WASHINGTON, D.C. — Representatives of wireless telephone carriers planning a telephone directory service told a U.S. Senate committee last week that legislation to protect their customers' privacy isn't needed, because their plan already does.

Privacy advocates and some senators questioned, however, whether wireless carriers would protect customer privacy in the long term without rules in place about how they handle the release of customer phone numbers.

"Chaos will reign when our constituents start getting calls on their cell phones," said Sen. Barbara Boxer (D-Calif.), a co-sponsor of the Wireless 411 Privacy Act. "I urge you to not wait for chaos to rain down with these unwanted calls. There's going to be a backlash, and then we'll have to deal with a mess."

Six of the seven largest wireless carriers in the U.S. are moving forward with a plan to band together to offer a wireless directory, or 411, service, backers of the plan told the Senate Commerce, Science and Trans-

> **Chaos will reign when our constituents start getting calls on their cell phones.**
>
> **Barbara Boxer**
> Democratic senator, California

portation Committee. The directory could be available as early as next year.

While most land-line telephone numbers are listed in directories, most people expect privacy on wireless phones, Boxer said.

The wireless industry plan calls for customers to opt in if they want their number listed in the 411 service, and the service will not be published in print or on the Internet, said Patrick Cox, CEO of Qsent, the company the wireless carriers chose to manage the service. Instead of publishing numbers, the wireless carriers would require customers to dial a directory service to get a phone number. "The database on Day 1 starts at zero" numbers, Cox said.

Backers of the service, including the

Cellular Telecommunications and Internet Association (CTIA), say customers such as small businesses are asking for the listing service. Legislation to protect privacy is unnecessary because privacy protections are already in place and because 97% of U.S. residents can choose between at least three wireless carriers, said Steve Largent, president and CEO of the CTIA.

"Why does a competitive, vibrant industry need to come before Congress to offer its customers a new service?" Largent said. "If carriers start offending customers by violating their privacy rights, guess what, they get to vote with their feet."

The Wireless 411 Privacy Act, introduced in November by Sen. Arlen Specter (R-Pa.), would put into law many of the privacy safeguards the wireless carriers are voluntarily proposing. The bill would prohibit wireless carriers from including subscribers' phone numbers in published directories without their consent, and it would prohibit wireless carriers from publishing a wireless phone number directory. It also would prohibit wireless carriers from

charging customers who want their names removed from a list. A similar bill was introduced in the House, also in November.

Among the wireless carriers participating in the 411 directory are Cingular Wireless, AT&T Wireless and Sprint. Verizon Wireless is not participating, and Dennis Strigl, Verizon Wireless' president and CEO, told senators the directory service was a "terrible idea" that could expose wireless customers to unwanted sales pitches.

Wireless carriers should each choose for themselves if they want to offer the service, Strigl said. Although he said he doesn't generally support more government regulation, he didn't speak out against the Wireless 411 Privacy Act.

When asked if he supported the bill, Strigl answered: "If this is what Congress wants to do, then those in our industry who want a directory have it coming to them."

Gross is a correspondent with the IDG News Service.

■ **Read more about what is going on in the wireless market. PAGE 20.**

Call centers

But the Concerto proved subject to long reboot times, frequent software upgrades that often created new problems and dialer glitches that had separate agents calling the same potential customers, Krauss says.

"If there was more than 10 people on it, it just started blowing up," he says.

So after two and a half years, ACT decided to eat the losses and sign on for hosted service from Five9. With a $150 per-agent setup fee and purchase of a VoIP gateway to support the service, setting up 20 agents cost $7,000.

"We can use Five9 for three years before the price breaks even with purchasing our own equipment," he says.

ACT got rid of two IT positions needed to maintain the Concerto system, ditched long-term maintenance agreements and has the potential to spread its agents around to make disaster recovery easier. With most of its agents in West Palm Beach, the facility was closed for three days when power was knocked out by Hurricane Frances, Krauss says.

Hosted services have other disaster-recovery possibilities, says Randy Rubingh, director

of customer services for Wage-Works in San Mateo, Calif., whose contact center handles customer service for its financial clients using White Pajama hosting. When the company's PBX that switched all its incoming calls crashed for 4 hours, the call agents were only affected for about 3 minutes, he says.

As agents logged on to the White Pajama service, they input the number of the phone they are using. When the PBX went down, they accessed their user profile page via the Internet, changed their workstation phone numbers to their cell phone numbers, and were back in business, Rubingh says.

The downsides

Hosted call center services have their downsides, too. The call center software that providers use might not offer all the features that come with mature, customer-owned call center software, he says. For many companies, owning all the call center gear gives a better sense of control and security, MediCall's Chess says.

For instance, in July the American Red Cross decided to open a contact center to handle overflow calls from its primary call

center in Falls Church, Va. Because the agency wanted the new site up and running for the current hurricane season, time was of the essence. While a network-based service would have been quick to turn up, it didn't make sense because the Red Cross still has life in its existing call center infrastructure, says Peter Kanis, manager of the Red Cross Response Center in Virginia.

"The main reason is we already had a seven-digit investment in a switch," bought just after Sept. 11, he says. "You have to make a lot of calls through a switch to make it pay for itself."

> ## The truth about outsourced call centers
> **While the financial and management advantages of contact center services are attractive, IT executives need to consider the services' potential downside.**
>
> | Pros | Cons |
> |------|------|
> | • Limited capital outlay. | • Reliability is up to the provider. |
> | • Rapid deployment. | • Jettisoning significant equipment/staff resources. |
> | • Ability to grow to exactly the number of seats needed. | • Service-level agreements could be lacking. |
> | • No IT management of gear needed. | • Perceived immaturity of services might scare C-level executives. |

At the moment, the bulk of customers for hosted contact centers have fewer than 100 agents each, says Barry Zipp, MCI's senior director of contact center product management. But MCI is gearing up for a big change over the next year, he says.

Similar to Verizon and Sprint, the company is creating an all-IP contact center infrastructure based on Session Initiation Protocol, with a media server blended in so the service can support agents connected via IP or via traditional TDM phones, he says. "Now we are looking at being able to deploy massive numbers of agents," he

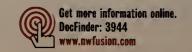says. The project is expected to roll out in three phases by this time next year.

Customers should consider three key factors when evaluating providers, says Steve Kowarsky, senior vice president of Cosmocom, which makes contact center software for providers.

First, they should support very large numbers of individual customers and be able to scale quickly as customers have a need for more agents.

Second, they should support agents anywhere. "As long as the agent has a good IP connection, they can be an agent in a distributed call center," he says.

And third, they should enable self-administration and monitoring, so customers can add and delete agents and supervisors can keep an eye on how each one is doing, Kowarsky says.

While not all providers support IP yet, that is coming and gives the added benefit of consolidating agent access via a single network rather than a traditional TDM phone and an IP-connected PC, Datamonitor's Goad says. "In an ideal world it will all come down to IP on one line." ■

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Microsoft

3Com prepares Linux-based IP PBX

■ BY PHIL HOCHMUTH

3Com is readying a Linux-based appliance version of its VCX 7700 enterprise IP PBX in hopes that an open source version of the product will be easier to sell through its channel partners.

The new product is targeted at organizations with more than 1,000 users, and could appeal to businesses interested in non-proprietary hardware and software platforms for telephony. The move also is an attempt to jump-start sales of VCX, which have been almost non-existent since it was introduced more than a year ago.

"Customers are less interested in proprietary components and are looking to standardize more of their infrastructure" hardware and software, says Peter Brockman, a marketing director at 3Com. This trend led to the decision to move VCX to Linux- and Intel-based hardware, he adds.

The new Linux-based appliance will run on Intel-based hardware and will include a modified version of Linux with extra packages, such as e-mail and Web serving or desktop interface, stripped out to make the platform more stable and secure, 3Com says. The vendor did not say when the product would be available or what it might cost.

It has been reported that sales of VCX were lagging in 3Com's enterprise channels because channel partners were not familiar with Solaris and preferred a Linux-based product. 3Com says that "revenue from VCX was neg-

ligible" in its first fiscal quarter, which ended last month.

VCX is based on technology from 3Com's defunct Commworks carrier arm, and runs on a Sun Solaris server — a common platform in the telco market. The

3Com's NBX IP telephony system has gained a foothold in the market while sales of its larger-scale VCX IP PBX have been "negligable," the vendor says.

product was introduced in April 2003 and was touted as 3Com's answer to enterprise IP PBX boxes from Alcatel, Avaya, Cisco, Nortel and Siemens. It is supposed to support more than 100,000 IP endpoints, such as IP phones or softphones. The platform also is based on Session Initiation Protocol, which lets it interoperate with other standards-based IP telephony hardware and software products.

3Com's more-popular NBX IP PBX for businesses with fewer than 1,000 users runs on the H.323 protocol and a proprietary, real-time, Unix-based platform.

The move to a Linux-based IP PBX platform is not unusual, says Ron Gruia, an analyst with Frost & Sullivan. Alcatel, Avaya and Mitel over the past two years revamped their respective IP PBX platforms to run on Linux. Meanwhile, Cisco has said it plans to move its CallManager from Windows to Linux but has not specified a time frame.
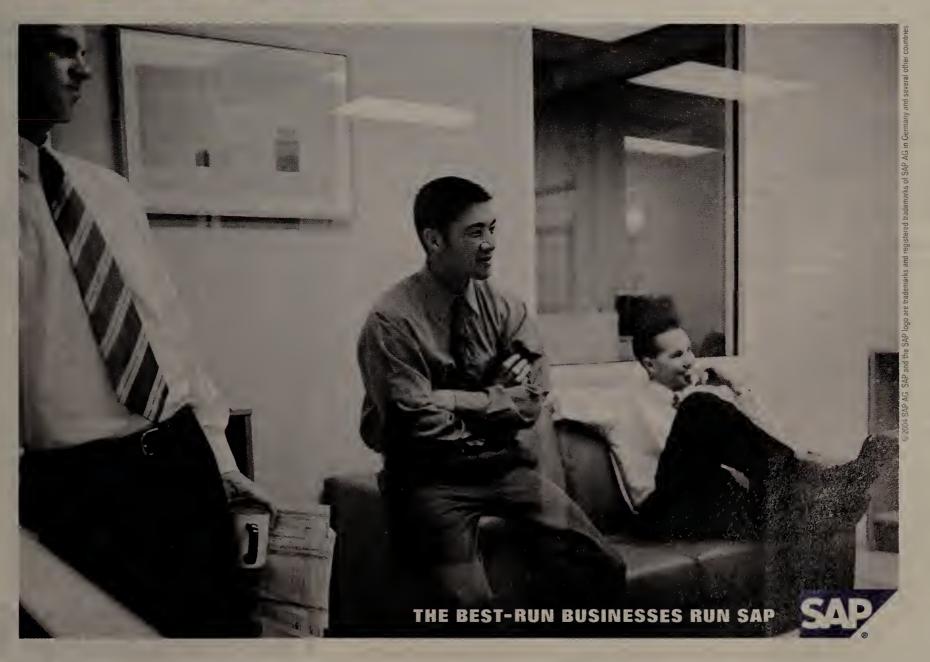
3Com's NBX IP PBX has sold well in small and midsize organizations. Moving VCX to a pre-packaged Linux platform with standard server hardware could give 3Com a more competitive product in the enterprise market, Gruia says. Because Linux and Unix are very similar, 3Com will have an easier time changing platforms than will Cisco, its chief Windows-based competitor, he adds.

"It's not as intense an exercise as what Cisco has to do, to go from a Windows [operating system] to Linux," he says. ■

Microsoft enters disk-backup market

■ BY DENI CONNOR

CHICAGO — Microsoft last week announced its entry into the disk-based data protection and recovery market with a product that initially is best suited for small and midsize sites but has the potential to address large data center needs over time.

The company says its Data Protection Server (DPS), introduced at the Storage Decisions show, resides on a Windows 2003 Server and can back up data from as many as eight Windows 2000 or 2003 machines to disk rather than tape. The product also works with Windows Storage Server 2003 network-attached storage appliances from Dell, EMC and HP, Microsoft says. The software works with Active Directory and is designed to enable data recoveries in minutes.

DPS is meant to supplement software that backs up data to tape. Unlike traditional offerings, DPS lets end users recover data on their own rather than requiring a network administra-

tor's intervention.

"The big deal is you are pushing the restore process down to the user, which is an incredible savings of IT staff," says Randy Kerns, a senior analyst with Evaluator Group. "Because it is so difficult for users to get an IT guy to do a restore, none of them will [usually bother] to ask to get back the file they accidentally deleted."

DPS initially works only with the Windows NT File System, but in the future will support servers running Microsoft Exchange and SQL Server, Microsoft says. This support, observers say, will let DPS be used in large data centers.

In DPS, agents deployed on each production server log all changes to files that occur on the server. These logs are then replicated and stored on the DPS server based on policies the IT administrator has set. The DPS server is likely connected to a multi-terabyte Serial Advanced Technology Attachment storage device.

DPS will compete with continuous-protection/instant-recovery products from Mendocino Software, Revivio and XOsoft. In these competing products, which also back up environments other than Windows, data is continually saved to disk, so that it can be retrieved from any time in the past. Unlike these products, Microsoft's DPS will only be able to retrieve data from certain pre-scheduled points in time.

Microsoft says DPS, which currently is undergoing beta tests, will be generally available in the second half of next year. ■

Network Physics debuts net management wares

■ BY DENISE DUBIE

Network Physics this week will introduce new and upgraded appliances it says companies can use to monitor network and application traffic across data centers and remote sites.

The company is unveiling a central appliance called NP-Director that will sit in a data center and provide a global view of a network. This view is based on data collected from up to 20 distributed NP-2000s, Network Physics' current boxes. Both types of appliance will run new operating system software dubbed NetSensory that facilitates communication among them.

The NP-2000s are 1U devices that plug in to a network via a switch port and passively watch all the traffic at key aggregation points. The boxes can auto-discover paths for each application flow in a network, determining performance metrics such as packet loss, throughput, network latency and server response times. IT managers can use the information to troubleshoot problems locally, but because the boxes also forward information back to NP-Director, central data center managers can determine whether a problem, such as increased WAN latency, is widespread.

The information the devices report can be used to pinpoint performance problems down to the network segment, server or application level, Network Physics says.

"Having an architecture that allows information to scale is very important," says Lynn Nye, president and founder of APM Advisors. "Instead of just pushing data back and forth, they have included distributed intelligent collectors that can interface with a central point to provide a consolidated view."

The product additions put Network Physics in competition with companies such as NetScout Systems and NetQoS.

A typical deployment of two or three NP-2000 appliances and one NP-Director could start at $150,000, depending on configuration. ■

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No strings attached

New wireless sensor products are rolling out fast and furious.

Company	What's new
Cirronet	Radio components, based on current draft of ZigBee specification for low-power 900-MHz radios, to link low data-rate sensors; 100mW power amplifier boosts ranges.
Crossbow	2.4-GHz radio module, compliant to IEEE 802.15.4, using TinyOS, an open source operating system for network nodes; designed for high-bandwidth applications.
Dust Networks	Products for linking sensors via battery-powered wireless mesh.
Point Six	Complete set of sensors, repeaters and gateways, based on 802.14.5 and ready to be upgraded to final ZigBee specification; sensors address temperature, humidity and motion.
Sensicast	Temperature and humidity monitoring product set, based on wireless mesh components, for real-time environmental monitoring of such things as hospital refrigerators.

Sensor

wireless technologies. "We can't think of any segment of the industry that isn't going to be impacted by this," said CTO Dan Shiflin.

But users at the conference were keenly aware that wireless sensor technology is a means to an end.

"You don't ask people: 'How would you use ZigBee?' Because they don't know," said Ken Douglas, recently named BP International's first director of technology and sensory networks, in the oil company's chief technology office. "But if you ask them: 'How would you use information that you can now access for the first time?' They have to think about it for a bit, but then the ideas just starting pouring out."

Cement and sugar beets

The conference overflowed with ideas, a number of which had that all-too-rare quality of being unique.

One involved cement, another sugar beets.

Rick Kriss, CEO of Xsilogy, described an application that involves embedding a Xsilogy sensor, coupled with a Bluetooth radio, into cement as it is poured to form a concrete piling. When the cured piling is slammed into the ground by massive hydraulic hammers, the sensor readings pick up characteristics of the waveform created by the impact and reflected by the surrounding soil. The data is transmitted to a nearby gateway and analyzed.

The reading shows the kind of soil on which the piling is grounded and the piling's load carrying capacity. That information can reduce the number of pilings and the amount of concrete in big construction projects, saving millions of dollars, Kriss said. The Xsilogy sensor comes with a 30-minute warranty that starts running with the first hammer blow.

Alex Warner, founder and president of Pedigree Technologies, a start-up still in stealth mode, described how a major U.S. sugar cooperative endures losses of $16 million per year because football field-sized collections of sugar beets, mounded nearly 30 feet high, begin to respire, lose sugar content, heat up and spoil.

Pedigree has created a pilot network that uses wireless 802.15.4 sensors to detect a heat spike and pass along an alert to a radio gateway at the top of the heap. The gateway transmits the alert and the co-op then can shift its processing priorities or send in a "fire team" to use various methods to cool down the mound.

Ultimately, real-time data from wireless sensors will let companies continually refine the way they work, for more efficiency and greater productivity, proponents of the technology said.

"The goal is not to schlep zeroes and ones back and forth, but to move up the value chain to optimize business processes," said Jeff Smith, CEO of SensorLogic. ∎

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Wi-Max proponents tout the benefits of wireless alternative

■ BY JOHN BLAU

Tired of new wireless technologies? Then stop reading. Because here's a story about a new wireless system that someday could eclipse the Wi-Fi service you've just begun to understand.

A new wireless technology known as Worldwide Interoperability for Microwave Access (Wi-Max) is winning followers while quickly gaining momentum on the standards front — despite high-profile skeptics such as Texas Instruments.

At least that was the consensus of industry experts attending a crowded workshop last week at the Broadband World Forum in Venice, Italy.

Some view Wi-Max not only as a wireless alternative to DSL, cable and leased-line services but also someday as a rival to mobile telephony.

"Never bet against mobility," said John Krzywicki, president of The Management Network Group (TMNG). "I estimate that a mobile solution for Wi-Max is only two to three years away."

Such optimism is to be expected at a broadband conference. But experts here seemed eager to avoid the hype and focus on Wi-Max's progress along with the challenges that lie head.

Wi-Max technology, based on the IEEE's 802.16 standard, can extend broadband wireless over longer distances and at higher speeds than current Wi-Fi or Bluetooth systems. Its access range, for instance, is up to around 30 miles, compared with Wi-Fi's 300 feet and Bluetooth's 30 feet. It supports data transmission speeds up to 70M bit/sec, compared with the popular 802.11b Wi-Fi standard's 11M bit/sec or the 802.11a's 54M bit/sec.

In addition to distance and speed advantages, Wi-Max doesn't require line-of-sight transmission.

The Wi-Max Forum, established in 2001 by industry heavyweights such as Nortel, Alcatel and Motorola, has been working on standards certification and interoperability testing. The first generation Wi-Max systems, based on the 802.16-2004 standard, could ship this year. Alvarion is targeting the second half of 2004 for the delivery of products with chips from Intel, according to Rudy Leser, vice president of marketing at Alvarion.

Many experts expect Wi-Max service to be deployed in rural areas, where high-speed cable infrastructure is either poor or nonexistent. Some also see opportunities to use the technology for backhauling traffic between Wi-Fi hot spots and for creating large wide-area hot spots.

Another Wi-Max standard under development is 802.16e, which provides mobility. Similar to digital mobile systems such as GSM, this standard will support seamless hand-off when users move around within the network.

Standardization work on 802.16e is expected to be completed in the second half of 2006, with service roll out planned for 2007, Leser said.

Further down the development pipeline is 802.20, also known as Mobile-Fi. "This standard is designed from the ground up as a mobile system," said Maximilian Riegel, head of advanced standardization at Siemens. "Although I don't think 802.20 technology will compete directly with 3G mobile systems, it will certainly provide a high degree of mobility."

The 802.20 standard is designed to support connections up to 1.5M bit/sec in devices moving at about 75 mph, says Christopher Rogers, technology strategist at Intel.

As euphoric as some experts were about Wi-Max at the Broadband World workshop, many pointed to challenges that still lie ahead, particularly on the spectrum front.

While Wi-Fi technology has blossomed in an environment of noisy, unlicensed spectrum, Wi-Max will need to move into less crowded bands for continuity and QoS reasons, according to a TMNG study. Many of these are licensed, such as 2.5 GHz and 3.5 GHz. Licensed bands are subject to regulation and, in many cases, cost a fee.

One unlicensed band under consideration is 5 GHz, but Wi-Fi 802.11a uses it, too. Unlicensed spectrum tends to be crowded because it lacks regulation and fees, and therefore must be closely managed to assure quality.

Meanwhile, some manufacturers are voicing their doubts about Wi-Max. Joseph Crupi, vice president of Texas Instrument's Broadband Communications Group, said the chip maker isn't convinced that the new wireless technology will revolutionize the way broadband Internet services are delivered to homes and offices.

Blau is a correspondent with the IDG News Service.

> ❝ **Never bet against mobility. I estimate that a mobile solution for Wi-Max is only two to three years away.** ❞
>
> **John Krzywicki**
> President, The Management Network Group

Sun woos Wall St. with latest offerings

■ **BY MARC FERRANTI**

NEW YORK — Sun last week fired off a barrage of product promotions, upgrades and service announcements in an attempt to retake its traditional stronghold in the financial community.

Making the case that the company's Solaris operating system offers better computing performance and system management for less money than comparable Linux systems, Sun President Jonathan Schwartz told a banquet hall full of investment banking analysts and financial services executives that the company delivered what its customers on Wall Street said they wanted.

Customers were asking for versions of Solaris that ran on multiple platforms and higher levels of performance for lower prices. "Now our shelves are full," Schwartz said.

In an effort to take back customers it lost to Linux, Schwartz announced a 50% discount

Sun has provided versions of Solaris that run on multiple platforms, says President Jonathan Schwartz.

on Solaris right-to-use licenses for customers upgrading from Linux.

Also on the pricing front, Sun said it would begin offering utility computing services at $1 per processor, per hour. Such services would be targeted at applications such as simulations, modeling and rendering that are easily optimized for grid computing. However, Sun did not say when it would roll out such services.

But for financial industry users, pricing is far from the whole story.

"We're not as big as some of the companies here, so we may have tens of servers, not hundreds, so the dollars don't add up as fast," said Steve Rubinow, CTO for Chicago Archipelago Holdings, an electronic trading system in Chicago. "If I can manage an environment of [just] Sun servers and avoid support headaches, running Sun offers an advantage."

Sun promotions geared to financial companies in New York included a Xeon trade-in

program offering cash credit for customers switching from Intel Xeon servers to Sun Fire systems based on Opteron processors. The credits range from $560 for low-end Sun Fire V20z servers to $1,250 for midrange Sun Fire V40z servers and $860 on Sun Java Workstations. Sun also is offering a free trial of a Sun Fire V20z server and the upcoming Solaris 10 to selected customers.

In addition, Sun released pricing information for products announced earlier but that shipped last week. These include the Sun Fire V490 and V890 servers, at starting prices of about $31,000 and $40,000, respectively. The servers boast four and eight dual-core processors, respectively.

Building up to the launch of Solaris 10 next month, Sun also announced that new products, migration tools and support will become available over the next 90 days through its Software Express for Solaris system adoption program. These include Predictive Self Healing, the Dynamic Tracing resource management feature, and Project Janus, which offers Linux/Solaris interoperability.

Ferranti is an executive news editor for the IDG News Service.

Reports mixed on IT spending
Goldman Sachs and Forrester surveys come to different conclusions.

■ **BY DENISE DUBIE**

Negating even its own earlier projections this year, a new study from Goldman Sachs shows IT executives are curbing their projections and scaling back spending plans for the last quarter, and remaining conservative with budgets into 2005.

According to Goldman Sachs, CIOs surveyed in August reported that spending increase projections fell from more than 2% to zero, with 14% of the 100 CIOs surveyed expecting overall budgets for 2004 to be more than 10% lower than those in 2003.

About one-third of those surveyed said 2004 and 2003 spending was about the same. The firm reports that nearly half the companies surveyed expect to spend less than they had budgeted for in 2004 and 47% spent projected amounts, while 4% spent more than planned.

"Although we hesitate to conclude that 2004 spending will end the year as low as these latest projections indicate, the negative directional change is a clear signal that all is not well in tech land," Goldman Sachs says in its report, "IT Spending Survey: The So-called Tech Recovery."

As for next year, Goldman Sachs is keeping estimates conservative and projecting IT spending to increase only 3% to 5% on average. Based on this survey, 37% of CIOs expect budgets to remain the same, and less than 20% expect them to drop. Forty-five percent do expect an increase, yet only 4% of that group expect the jump to be by more than 10%.

"CIOs arguably have a clearer picture of tech spending today vs. last year, and discouragingly, estimates are still coming down," the report says.

Separately, Forrester Research found things to be a bit more optimistic. The research firm forecasts IT spending in 2005 to increase an average of 6%, a 2% increase over its projection for this year.

The firm says technology buyers still are working on process improvements and getting the most of their last round of IT investments from the previous few years. And "as a result, investment in technology will grow only slightly faster than economic growth," Forrester says in its report, "IT Spending Outlook: 2004 to 2008 and Beyond."

The firm also found in a separate poll of 195 CIOs that two-thirds expect to spend more next year over 2004, and that business for them could get better in the coming year. Those respondents said they expect an average planned budget increase of more than 6%. ■

Cautious outlook

When asked what they considered their normal, long-term IT spending growth rate to be, a majority of 100 CIOs surveyed kept projections conservative.

- 15% to 20% — **1%**
- 10% to 15% — **6%**
- 5% to 10% — **41%**
- 0% to 5% — **52%**
- More than 20% — **0%**

SOURCE: GOLDMAN SACHS IT SPENDING SURVEY, AUGUST 2004

Commtouch fights spam at gateway

■ **BY CARA GARRETSON**

Commtouch Software, which uses digital signature technology to detect unwanted e-mail, last week released a version of its product designed to appeal to large companies.

The company's Anti-Spam 4.0 software uses Commtouch's statistical approach, called Recurrent Pattern Detection (RPD), to filter spam at an organization's gateway, says CEO Gideon Mantel. The previous version of Commtouch Anti-Spam resided on the mail server and worked only with Microsoft Exchange; this version resides at an organization's gateway and is compatible with any mail server, he says.

The software doesn't examine the content of a message, but creates a digital signature of each e-mail and then compares it with other incoming traffic to find patterns, such as having the same first, fourth and seventh character in the message's subject line. If the software sees a large number of e-mail messages sent at once with matching signatures, it will

Analysts debate possible sale of MCI

■ BY DENISE PAPPALARDO

While it emerged from bankruptcy five months ago, it appears there could be more big changes in MCI's future.

Last week *The New York Times* reported that the carrier has hired three investment banks to advise MCI as it looks for a potential buyer. According to the report, MCI is looking to get at least $6 billion for the company. Although MCI won't comment, President and CEO Michael Capellas answered questions last week at the Banc of America Securities conference in San Francisco.

"We have been through every distraction known to man. Our No.1 priority is that we are going to drive forward with this business plan," Capellas said. He concluded the topic by saying "we are going to stay focused ...and any other comment I would make would be inappropriate."

Even though MCI is keeping details about its search for a buyer quiet, it's not an entirely new development. Two months ago Leucadia National sought permission to buy at least half of MCI's stock (see www.nwfusion.com, DocFinder: 3940). In July, analysts speculated that Leucadia's interest in the downtrodden carrier could open the floodgates to offers from others.

It's not clear if Leucadia is still in the running, or if it just didn't offer MCI enough money and talks broke down, says Allan Tumolillo, COO at consulting firm Probe Financial Associates. But if not Leucadia, there are a handful of other likely candidates that could be interested in buying all or parts of MCI. Tumolillo points to AT&T and BellSouth as two companies that are

> **❝ MCI probably has more value in its piece parts. ❞**
>
> **Robert Rosenberg**
> President, Insight Research

likely to be interested.

AT&T is aggressively rolling out its VoIP consumer service and is teaming with cable providers to reach more consumers. If it bought MCI's consumer business it would have more users to bring to the cable industry, Tumolillo says. If AT&T bought parts or all of MCI's enterprise business, it would be taking out a competitor, he says.

Although Verizon and SBC might be interested in MCI's enterprise business, BellSouth is the one RBOC that needs to make a move, Tumolillo says.

BellSouth "will always be fourth or fifth after the RBOCs and [interexchange carriers] if it doesn't do something," he says.

Another analyst sees MCI being sold in parts, with likely buyers in the RBOC or international ISP circles.

"MCI probably has more value in its piece parts," says Robert Rosenberg, president at Insight Research. This is true for two reasons, he explains. Under Bernie Ebbers' rule, the company made many acquisitions that were not fully integrated into the parent company. Secondly, the MCI brand still is tarnished despite a name change and new executive regime, Rosenberg says.

"MCI's international network has some great appeal to someone like SBC or Verizon who could pick up substantial business-class customers," he says. MCI currently offers services in 65 countries. ■

■ Read Johna Till Johnson's thoughts on MCI. PAGE 44

Commtouch
continued from page 21

flag them and store them in a quarantine folder at the gateway.

To limit an organization's storage requirements, Commtouch houses these digital signatures at its detection center in Mountain View, Calif. The software residing on an organization's gateway automatically does a DNS query to compare incoming messages with stored signatures, a process that results in almost no latency, Mantel says.

Commtouch's technology isn't looking for spam per se; it's looking for outbreaks where hundreds or thousands of identical messages are sent, Mantel adds. Therefore, the product also can be used to detect viruses, he says.

It's this digital signature approach that

separates Commtouch from the competition, such as anti-spam filter maker Symantec and appliance vendors IronPort Systems and CipherTrust, Mantel says.

Perhaps the closest competitor to Commtouch is Cloudmark, which recently released its Immunity software that generates a "genetic map" tailored to meet each company's definition of spam.

"There are a variety of good techniques [for fighting spam]; this is another of them," says Michael Osterman, president of Osterman Research, of Commtouch's software. "Because of recurring patterns in spam, the RPD technique is a useful [one]."

With Anti-Spam 4.0, Commtouch charges an initial gateway setup fee of $2,500, plus $8 to $20 per user per year, the company says. ■

Chances are you won't get fired for buying an IPSec or SSL VPN.
Here's why you should be.

Infrastructure

Short Takes

■ **Stratus** last week introduced an entry-level, **fault-tolerant server** for businesses that require business continuity. The ftServer W Series 2300 server promises 99.999% uptime, the company says, and is designed for use in distribution centers, warehouses, branch offices and retail chains. The Intel Xeon processor server supports Microsoft Windows 2003 Standard Edition, as well as Microsoft Virtual Server 2005 and VMware's GSX Server. The 2300 is available in rack-mounted or pedestal configurations and has as much as 240G bytes of internal storage. The server starts at $19,000 and is expected to be available in November.

■ **Dell** and **Oracle** expanded their existing **partnership** last week by offering a server/database combination aimed at small companies. The package features a Dell PowerEdge server bundled with the Oracle Database10g Standard Edition One database and the Microsoft Windows Server 2003 operating system. A customized dashboard lets users perform common Oracle administration duties while the one-stop purchasing approach provides hardware and software with a contract to license the database. Prices for the PowerEdge 2850 bundle start at about $15,000, including a Dell PowerVault 220S external storage system. The PowerEdge 2800 package will start at about $8,000.

■ **Cisco** said it will add up to **1,000 new employees,** primarily in its engineering and sales groups over the next fiscal year, which ends July 31, 2005. The company stated the hiring plans in its 2003 annual report, released this week. Cisco's 2003 fiscal year ended July 31, 2004. The company said it expects research-and-development and sales expenses to increase over the next 12 months as a result of the hiring plans. Cisco employs more than 34,000 people.

Cisco offerings target small firms

■ BY PHIL HOCHMUTH

Cisco this week will release products it says will help small companies deal with the complexities of LAN switch security, convergence and network management.

The hardware includes a new management module and new 24-port modules for the Catalyst 4503 Ethernet switch chassis, with features such as secure LAN switching and power over Ethernet (PoE). Cisco also is announcing a 48-port, triple speed PoE stackable switch includes a free network management software package.

The new Supervisor II-Plus-TS, deployed in a Catalyst 4503 chassis, is designed to run as a backbone switch for companies with less than 500 end users. The box can

Aimed at small to midsize businesses, the Catalyst 4948 switch is the first of 30 products that Cisco will launch over the next 12 months.

support up to 64G byte/sec of switch capacity as well as Layer 3 static routing, and runs IOS software -— more advanced routing features such as Open Shortest Path First would require upgraded IOS. The new Supervisor blade includes 12 PoE ports at speeds of 10/100/1000M bit/sec that are built into the module for connecting to servers, other switches or desktop connections.

Cisco also is releasing a variety of 24-port blades for the Catalyst 4503, including

10/100, 10/100/1000 and PoE modules.

Previous blades for the three-slot Catalyst 4503 were predominantly 48-port modules, aimed at high-density enterprise wiring closets. Cisco says the new 24-port offerings, with lower density and a smaller price, will appeal to smaller organizations.

The Supervisor II-Plus-TS blade, which acts as the switching brains for the chassis, also includes several security features. One is dynamic Address Resolution Protocol inspection, which let the switch block some network attacks by identifying and discarding packets with mismatched media access control (MAC) and IP addresses — a common signature in packets used in denial-of-service attacks. Cisco says this feature can be used to thwart "man-in-the-middle" wireless network hacks, where intruders attempt to gain access to a wireless LAN (WLAN) by intercepting, then spoofing, legitimate IP and MAC addresses on the network.

A Catalyst 4503 fitted with the Supervisor II-Plus-TS module is being deployed at the Computer History Museum in San Jose. The box will act as the backbone for the museum's small network, which supports some large-bandwidth applications, such as IP video and Gigabit Ethernet for the museum's multimedia exhibits, says Mike Watson, IT director for the museum.

The Catalyst 4503 with the new Supervisor module, "is a little more aggressive on price," than previous 4500-series products aimed at larger companies, Watson says.

Cisco says the base price for a Catalyst 4503 and Supervisor II-Plus-TS is about 40% to 50% less than previously available 4500 series hardware, which was targeted for enterprise wiring closets.

Watson also is using the new Catalyst 4948 — a 48-port 10/100/1000M bit/sec switch with PoE capabilities — that he will deploy in the museum's server room. To manage the network, Watson uses the Cisco Network Assistant, a free software

Dust provides meshed WLANs for industrial use

■ BY PHIL HOCHMUTH

Industrial wireless start-up Dust Networks this week is expected to launch its company and products, which are aimed at networking factory-floor equipment and other hard-to-connect devices via wireless mesh-network technology.

Dust Networks' gear combines proprietary wireless mesh network technology with old-fashioned serial and 10Base-T network ports to connect devices such as machinery, electrical equipment and other devices. These features let devices be remotely monitored and configured. The company's tiny wireless base stations — about the size of a cigarette carton — could help industrial businesses inexpensively install a network to remotely monitor and configure important equipment.

Dust Networks' SmartMesh product set includes Motes, which are small wireless network nodes, and the SmartMesh Manager, which is a network appliance for managing Motes and collecting data from devices on the network. The Motes are tiny access points — about the size of a pack of cigarettes — powered by double-A batteries that can connect devices via analog,

digital or RS-232 serial inputs.

The company says the batteries let the Motes be deployed anywhere, regardless of available electrical outlets or wired network ports. The vendor says the devices were designed to consume little power, with battery life estimated at about a year.

Motes usually are deployed with a third-party telemetry or measurement device, such as a thermometer, vibration sensor, or interface card for a third-party equipment, such as factory machinery.

"Up to this point, everyone talking about full mesh networks has been talking about line-powered access points," says Joyce Putscher, principal analyst at InStat/MDR. "This is the first time someone has added the battery aspect of a full-mesh" WLAN.
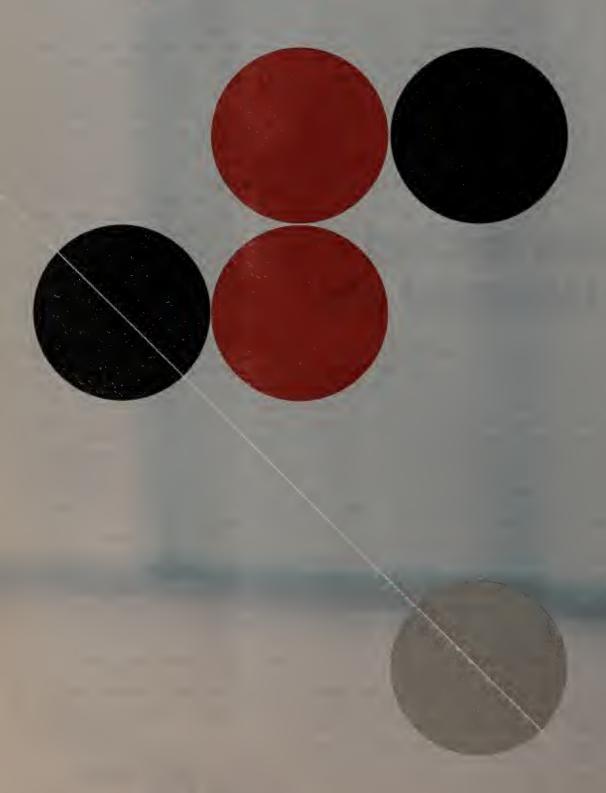
Motes collect data in real time and send it over the low-bit rate SmartMesh network, based on a 902MHz to 928MHz wireless spectrum. Each Mote is a self-contained wireless router, that can send and receive packets and apply QoS settings to traffic on the mesh network. This lets Motes communicate with each other and route data to any other node
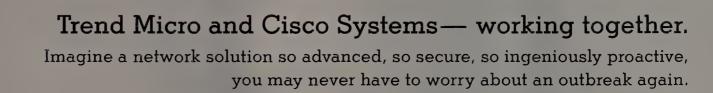
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Site: Lessons from Leading Users

Free-space optics keeps fitness center in shape

Laser-based campus technology overcomes Wi-Fi shortcoming.

■ BY TIM GREENE

24 Hour Fitness had a Wi-Fi problem: The wireless LAN bridges it installed between two adjacent corporate buildings in Carlsbad, Calif., kept crashing every day around noon.

The Lucent 802.11b network would run well in the morning, "then — boom — it went down," says Justin Kwang, manager of networking and security for the 300-site fitness company.

After some investigating, Kwang discovered that the culprit was a nearby biotech company that was sterilizing equipment every day at lunchtime in an autoclave whose electromagnetic radiation emissions disrupted the fitness company's Wi-Fi signal. The biotech company had no choice but to turn on its equipment when it did, so Kwang had to look elsewhere.

One challenge is that the software developers who were writing business applications to run 24 Hour Fitness's workout centers required as much as 10M bit/sec of bandwidth off and on during the day between the two corporate headquarters buildings. But Kwang says digging a trench and running high-bandwidth fiber between the buildings was out of the question for two reasons: high cost and the difficulty of getting permission from building owners.

Cost was also prohibitive for running dedicated lines across the 100-yard span between buildings, Kwang says. The company would have required six T-1s bonded into one logical pipe, and that would cost $6,000 per month. "There's no way I'm going to get six T-1s," he says.

Next up was free-space optics, which involves the transfer of data on a laser beam without using optical cable.

The company chose LightPointe as a vendor and bought a pair of FlightLite 100 boxes. The devices transmitted at 10M bit/sec, but had trouble receiving during morning fog, Kwang says.

The company upgraded to a FlightLite 155 that transmitted at 100M bit/sec, but required a transceiver to convert Category 5 wire signals to optical signals the devices uses. The faster devices also cut through the fog problem by using a more powerful laser and better-tuned receivers, Kwang says.

Currently, the company uses a new version of the FlightLite 100 that requires no transceiver and transmits at 100M bit/sec. The boxes also support Power over Ethernet (PoE), so they sit on the roofs of the two buildings but require no separate power connection. Getting permission to install the power and drilling a hole in the roof was a hassle for the earlier models, Kwang says. "It's just painful to bring electricity up there. It's one less thing I have to worry about," he says.

The company uses Cisco switch models that don't support PoE, so it bought separate power injectors that sit in-line with the FlightLite gear, Kwang says.

As an early Wi-Fi customer, 24 Hour Fitness actually got rid of the 802.11 gear before well-publicized security issues started hounding the technology.

"Back then we had no concerns. Nobody knew you could hack 802.11b," Kwang says.

The free-space optics gear solves the security problem because the lasers are focused and cannot be intercepted without disrupting the connection.

The $6,000 that the fitness company paid for the LightPointe devices was a small enough expenditure — compared with the recurring cost of T-1s — that it wasn't challenged by corporate finance, Kwang says. "We didn't need to justify anything," he says. ■

Data lasering

24 Hour Fitness had trouble with its Wi-Fi link between buildings so it uses LightPointe lasers to transmit data.

LightPointe FSO device

A pair of LightPointe free-space optics units can send traffic at 1G bit/sec.

The cost of digging up the parking lot between the leased buildings was prohibitive.

Thick early morning mists in San Diego blocked the laser until the fitness company upgraded to a more powerful unit that pierces the fog.

24 Hour Fitness headquarters

24 Hour Fitness annex

HP services target blade server environments

■ BY ROBERT MCMILLAN

HP last week announced a pair of new service offerings designed to help customers with the installation and management of blade systems.

Version 4.2 of Systems Insight Manager will include software called the HP Essentials Patch and Vulnerability pack, which is based on the Radia technology that HP acquired in its February purchase of Novadigm.

"This pack enables known software vulnerabilities to be automatically identified across my blade server infrastructure," says Rick Becker, president and general manager of the BladeSystem division.

Systems Insight Manager now will be better integrated with virtual machine software from Microsoft and VMware, thanks to a Virtual Machine Management Pack, he says.

The new service offerings include an installation service, where HP professionals will help customers get a pilot HP blade system up and running at a cost of $1,600 for a single-day session. Customers who want HP's services to get production systems up and running will pay an hourly rate, HP says.

New blade customers might prove to be a fertile market for HP's service offerings, as users continue to complain of headaches managing and configuring blade software — especially in heterogeneous environments.

Management software from major blade vendors could stand improvement, says Jim Strasenburgh, vice president of systems and systems architecture with Nyfix, a trading systems provider in Stamford, Conn., which uses IBM and HP's blade systems.

"The software is often tested in vendors' labs with the software that they like or that they need to integrate with," he says. "There's a long way to go before you can click and drop [management] agents and have them come up without a lot of effort."

Meanwhile HP also announced it formed a new division within its Enterprise Storage and Servers Group chartered with unifying the company's blade system development efforts. Becker, a former Compaq employee who previously served as vice president of operating system marketing for the Industry Standard Server Group, heads the new group, called the HP BladeSystem division.

Becker will coordinate the blade-related activities of approximately 1,000 HP employees, taken from HP's services, Industry Standard Servers, OpenView and HP Labs divisions.

HP expects blade systems to bring in $500 million in revenue during its 2005 fiscal year, which begins Nov. 1.

Becker's group will head up the development of server, storage, network and management software technologies for HP's blade systems, he says. One major goal of the new group is to create a common chassis for HP's blade systems, Becker says. Although HP has two separate chassis designs for its blade servers and a third design for its blade PC systems, the company hopes to eventually have a common chassis for its blade systems, he says.

McMillan is a correspondent with the IDG News Service.

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TOLLY ON TECHNOLOGY
Kevin Tolly

The case for fractional 10 Gigabit Ethernet

We've been here before. When Gigabit Ethernet arrived in the late 1990s, network managers could take the order of magnitude leap to true Gigabit or create "fractional" Gigabit links by using multi-port Fast Ethernet and "bonding" software. Now, with 10G Ethernet becoming common on LAN switches, a similar choice awaits us. And it's the same — except that it's different.

The part that is the same, naturally, centers on cost. With 10G Ethernet, as with any new technology, initial costs are high. It's not until volumes increase that prices tend to drop.

Although with 10G Ethernet, market forces already have seen per-port switch prices "plummet" from the $25,000 range to a mere $13,000 today. So it's still pricey. Knowing that, vendors are typically targeting high-end clustering and data center applications where speed is the need and price is no object.

Network interface cards (NIC) of 10G Ethernet aren't inexpensive, either. One of the few "general purpose" 10G Ethernet NICs I could find was the Intel Pro/10G Ethernet LR Server Adapter. One site will get you this NIC for "only" about $3,500. That's for one — not a 20 pack. Did I mention that it's pricey?

Let's also not forget that, currently at least, all 10G Ethernet is optical (and not copper). Even in the Gigabit world, fiber-optic connections are more costly than copper.

Now let's look at current Gigabit pricing. I'll grant that when one compares a 24-port Dell or a 3Com fixed-port switch to some high-end datacenter beast, it's not a true apples-to-apples comparison. But, it is a valid comparison in the sense that it provides wire-speed Gigabit connectivity to your servers and endstations.

While the "sale ends soon," as I write this piece, a humble, unmanaged PowerConnect 2624 offering 24 Gigabit Ethernet ports can be bought for $299 — or about $12.50 per port.

Given that the current price for a 10G Ethernet port is about 1,000 times greater,

> **Given that the current price for a 10G Ethernet port is about 1,000 times greater . . . it might be time to 'go fractional.'**

you definitely have something to think about there. It might be time to "go fractional."

From Intel, for example, you can buy a Pro/1000 MT Quad Port Server Adapter. You get four Gigabit copper ports for roughly $450 — or a little more than $100 per port.

In theory, then, for less than $500 — including the four switch ports you'd eat up — you'd get 400M bit/sec, that is 40% of the bandwidth, for about 3% of the cost of a 10G Ethernet solution.

Now there are complications with dealing with multi-port NICs. You need to grapple with "teaming" software to make them act as one. You might require special switching capabilities such as Link Aggregation (which, by the way, our $12.50 per port switch supports). But my point is that with such a jaw-dropping price difference it's worth considering whether fractional 10G Ethernet can do the job for you.

Let's not forget, too, what's different. With the rise of 10G, we are hearing serious discussion about things like storage over IP and clustering. To help us reach those goals, we have vendors such as Ammasso and S2IO that are building specialized NICs — that implement advanced features such as Remote Direct Memory Access or TCP/IP Offload (and more). While they cost more, they do more.

So look to use 10G Ethernet and the specialized NICs for the jobs that both are targeted for, but don't overlook the potential benefits of "fractional" 10G Ethernet that you can enjoy today.

Tolly is president of The Tolly Group, a strategic consulting and independent testing company in Boca Raton, Fla. He can be reached at ktolly@tolly.com.

Cisco

tool that comes with the new hardware products. The software lets users view Cisco switches, routers, IP phones and WLAN access points on a network and configure these devices through a GUI, instead of using the IOS command-line interface.

The 48-port Catalyst 4948 will compete with similar products from Nortel's BayStack switch line, as well as Extreme Networks' Summit and Foundry Networks' FastIron stackable products. Products similar to the Catalyst 4503 include 3Com's Switch 4900 and Nortel's PassPort 8300.

The new products emerge as Cisco looks to sell more hardware to small and midsize businesses. Cisco CEO John Chambers this spring said the company will launch 30 new products in the next 12 months that will be aimed at smaller firms.

Last week, the vendor announced a program where customers with Linksys equipment can upgrade their low-end products for Cisco-branded hardware (Linksys is a subsidiary of Cisco).

The Catalyst 4503 Supervisor II-Plus-TS costs $6,000 and is scheduled to be available next month. A Catalyst 4500 24-port 10/100 module costs $2,500. The 24-port 10/100 PoE module costs $3,500, and the 24-port triple-speed PoE blade is $4,500.

A six-port triple-speed PoE module with six optional small form factor pluggable fiber modules is expected to be available next moth for $3,500. The Catalyst 4948 costs $13,500. ∎

Dust

within 100 feet.

Data collected by the Motes is formatted in XML and routed to the SmartMesh Manager, a network appliance that can be powered via an 802.3af Ethernet link. The box is used as a relay point to shunt data collected from SmartMesh to a back-end server or monitoring application. The SmartMesh Manager is also a network management node for configuring and monitoring the health of the Motes (see graphic, right).

The SmartMesh technology also includes an XML-based data schema and API. XML allows data collected from devices on a SmartMesh network to be handled by standards-based applications and servers on the back end. The API lets users program how data is classified via XML tags, and integrate the data into other software platforms.

While Dust Networks uses proprietary wireless network technology, the company is developing a wireless chipset based on the IEEE's 802.15.4 proposal for wireless mesh networks.

Dust Networks CEO Joy Weiss says this will let her products interoperate with other 802.15.4-compliant networked devices, such as security, light, or heating, ventilation and air conditioning systems.

Rather than selling directly to business users, Dust Networks' customers are industrial automation vendors such as Honeywell Automation and Control Solutions, which makes products to monitor and control heating, ventilation and security systems in buildings. Honeywell is integrating SmartMesh products into its own offerings,

Wireless industrial networking

Dust Networks' SmartMesh technology can be used to network industrial devices.

❶ SmartMesh nodes, or "Motes," connect to the devices they monitor, such as industrial machinery, via analog or digital connections.

❷ Data gathered from devices is formatted in XML and transmitted over a mesh network with any-to-any connectivity. Motes act as wireless routers that can send and receive data.

❸ A SmartMesh Manager connected to the LAN allows XML-based data to be collected by back-end monitoring applications. An XML-based software is also used to manage the mesh via a console application.

and recently deployed a network at Supervalu, a chain of grocery superstores in the Midwest.

The Dust Networks system is deployed in Supervalu stores along with Honeywell electrical monitoring equipment. The system lets the grocery retailer monitor how much electricity stores use in certain areas, such as refrigeration or lighting.

In the past, it was almost impossible to get accurate information on power usage in stores, according to Dan Bertocchini, corporate director of energy management for Supervalu. Now data gathered from power sources in the stores is sent by a WAN connection to the corporate headquarters in Minneapolis, where technicians can view statistics on power usage across the entire chain to better plan utility needs.

Products based on SmartMesh technology are available now from Dust Networks OEM partners such as SAIC.

Other vendors offering wireless mesh network gear include Ember Networks, Millennial Net, Crossbow Technology, Sensicast Systems and Figure 8 Wireless. ∎

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IronPort looks to be e-mail's guardian

■ BY CARA GARRETSON

"E-mail is broken, and we're going to fix it," says Scott Weiss of his company IronPort

Short Takes

■ **Liquid Machines** last week announced plans to acquire **Omniva Policy Systems** for an undisclosed amount. Both companies sell software used to manage corporate digital rights; Liquid Machines for documents, and Omniva for e-mail. Liquid Machines' product includes a client and a server component and lets a company set rights for documents created within the organization. These rights can include the ability to print, cut and paste, change and save a document. Omniva Policy Manager lets users set similar rights for e-mails. Liquid Machines intends to rename Omniva's product Liquid Machines E-mail Control. Its own product will be called Liquid Machines Document Control. The renaming will likely happen in November, when Liquid Machines plans to release Version 3.0 of its product, the companies said. A combined product is planned for the second half of 2005.

■ **SlipStream Data** is introducing a business version of its Internet-acceleration software used by ISPs such as NetZero to boost the dial-up speeds. Called **SlipStream Secure Enterprise,** the software compresses intranet traffic between Windows PCs in branch offices to headquarters. It doesn't affect traffic traveling to and from sites not on the intranet. It compresses Web traffic and e-mail traffic but not client server applications. The company says it can improve the performance of intranet connections by a factor of six. SlipStream SE consists of client and a centrally located SE compression server that handles outbound traffic. The software costs $65 per seat for 50 licenses and drops to less than $50 per seat for 1,000.

Systems. That's quite a claim, coming from the CEO of a start-up that was founded just three years ago and hasn't yet turned a profit.

Few people would argue with the first half of Weiss' statement, given that spam, phishing, viruses and other abuses are making it difficult to trust e-mail. But fewer still would agree that one company can single-handedly cure all the problems that plague e-mail.

But in the crowded market of companies trying to chip away at e-mail abuse, Weiss says he believes IronPort is poised to take a leading role. "It's our ball to fumble," he says.

"We're looking at [IronPort] as a potential top player in this market," says Sara Radicati, president of analyst firm The Radicati Group. IronPort's appliance approach to fighting spam, which the analyst group favors, combined with its strength in U.S. and European corporations

and effective channel strategy, make the company a contender.

The anti-spam market is crowded, to say the least –– Radicati says there are about 300 companies currently selling some sort of spam protection — as vendors rush to provide solutions to a problem with an exponential growth rate. IronPort's competition breaks down into three main groups; companies such as CipherTrust, Mirapoint and Proofpoint that also sell appliances armed with anti-spam technology; enterprise software companies such as Symantec, MailFrontier and Cloudmark; and service providers such as Postini and FrontBridge.

However, Radicati says there are a number of companies vying for that spot. It seems this market is not one company's ball to fumble just yet.

IronPort makes Mail Transfer Agent gateway appliances, which are used mostly by

large companies and ISPs to send and receive e-mail while filtering inbound messages for spam and viruses, and outgoing traffic for adherence to corporate and regulatory policies.

Although IronPort's anti-spam filters are licensed from Symantec and its virus protection from Sophos, the company has developed a number of related offerings in-house. These include a reputation service that rates a sending history of an IP address and its Bonded Sender program that certifies legitimate bulk e-mail senders.

The company also owns SpamCop.net, a service it acquired last year that lets e-mail users report spammers. The service has been the target of lawsuits by e-mail senders who feel they've wrongly been labeled spammers — in fact SpamCop's Web site asks for donations to be used in its

Authentication services on tap

■ BY ELLEN MESSMER

VeriSign last week began offering a managed authentication service based on two-factor hardware tokens that online businesses can use as an alternative to hosting their own authentication servers or depending on less-secure, reusable passwords.

The VeriSign Unified Authentication service relies on a handheld-hardware token, including a smart card with a digital certificate or a handheld key fob that generates one-time passwords. There are only a few services today for managed two-factor authentication servers, such as that from RedSiren, but VeriSign sees the potential for growth as companies increasingly appear willing to outsource security or tighten security in the face of regulatory-compliance requirements.

"Identity theft, phishing and the need for regulatory compliance are driving factors that make two-factor authentication preferred to a simple password," says Nico Popp, VeriSign's vice president of authentication services.

In the VeriSign-managed service, businesses can give the hardware token to their customers in lieu of assigning simple passwords. Some companies are wary of deploying public-key infrastructure or

dynamic password tokens that are perceived as complex, and VeriSign's managed service is aimed at remote hosting of the necessary authentication servers in its own data centers.

However, for the authentication service to work, the company must be willing to install VeriSign's middleware on Microsoft

VeriSign's Unified Authentication key fob authenticates users by generating one-time use passwords.

Windows 2003, Active Directory and Microsoft Management Console, Popp says.

If the business uses Microsoft products, adding the VeriSign middleware to Active Directory will let Active Directory validate the token's form factor and one-time password through the middleware's so-called "validation utility" that will securely transmit the user's authentication data to VeriSign over the Internet.

Through its data centers, VeriSign would then complete the authentication process

as a service, which frees the customer from having to maintain additional servers on site for certificate or password validation. Popp says the service costs about $25 per token user.

VeriSign rival in the digital certificate business, RSA Security, also is unveiling a two-factor variable-password authentication service with AOL. The service also relies on a key fob-based token device, and AOL has installed RSA Security's ACE/Server internally to authenticate users by means of variable passwords generated by the SecurID token. AOL is the first ISP to offer such a service to consumers who might want to forego use of less-secure, reusable passwords.

The service, called AOL PassCode, costs up to $4.95 per month, depending on the number of screen names on the account, plus $9.95 for the RSA Security key fob that generates a one-time, six-digit password every minute.

"It's based on the same RSA SecurID authentication used by business," says John Worrall, vice president of worldwide marketing at RSA. Worrall said some businesses, including Credit Suisse, Barclays Bank, and Wells Fargo, have distributed RSA SecurID tokens to customers, but mostly for expensive, high-risk transactions. ■

Symantec report: E-com attacks on rise

■ BY ELLEN MESSMER

Symantec last week issued its biannual Internet threat report, which notes, among other trends, that e-commerce sites were the most targeted by hackers in the first six months of this year.

Symantec's report indicates that attacks on e-commerce firms grew to represent 16% of all attacks, up from 4% in the previous six-month period. Alfred Huger, senior director of engineering for the Symantec Security Response division, surmises e-commerce sites might be among the easiest places to steal credit card data. Symantec's previous six-month report cited banks and brokerages were the most-targeted industry.

"The e-commerce sites seems to be a place where attackers go after credit cards and goods for the cash," Huger says.

In addition, the Symantec report, which analyzed data for the period from January through June, points out that the number of computers infected by bots, short for robot code that an

Internet security report

Symantec's semiannual analysis of more than 20,000 sensors in 180 countries found:

- Slammer worm was the most common attack.

- The Gaobot Trojan and its variants were second-most common.

- The number of bot-infested computers rose from 2,000 to more than 30,000 in the last six months.

- E-commerce sites were the most targeted as an industry.

- The average time between the public disclosure of a vulnerability and the release of an exploit for it was 5.8 days.

- An average of 48 vulnerabilities per week were disclosed between Jan. 1 and June 30.

- 479 vulnerabilities, or 39% of the total volume, pertained to Web applications.

attacker installs on a computer to remotely scan systems and collect data, increased from less than 2,000 in the last six months of last year to more than 30,000 for the first six months of this year.

One particular bot, the remote-access Trojan called Gaobot, was predominant. "It's become the de facto bot on the Internet for back doors," Huger says. "The person who controls it can launch a denial-of-service attack or basically anything they want." Huger added that there's evidence the Gaobot source code is being sold for about $500 for criminal use.

Symantec also documented 4,496 new Windows-based viruses and worms for the first half of this year, four-and-a-half times the number in the same period last year. The Slammer worm, first reported in January 2003, ranked as the most prevalent type of attack, while Gaobot was second.

Overall, organizations received an average of 11 attacks per day, a 15% decrease from the previous six-month period and a 27% drop as recorded in the first six months of 2003.

Worms and bots often infiltrate host computers by exploiting vulnerabilities. For the first half of this year, the number of disclosed software vulnerabilities grew 5% over the previous six months to 1,237. In addition, attackers are exploiting known vulnerabilities far more quickly than they have in the past, with the average time between the vulnerability's announcement and the attack on Web-based applications shrinking from 99 days a year ago to 5.8 days today.

Symantec collects its report data from more than 20,000 sensors maintained by cooperating organizations in 180 countries. ■

Security

PeopleSoft, IBM strike middleware alliance

■ BY STACY COWLEY

PeopleSoft last week said it would work with IBM to optimize its applications for use with IBM's WebSphere middleware and development tools, and will begin selling WebSphere products directly through its own salesforce.

In expanding their alliance, the two companies also said they would jointly develop software packages aimed at customers in three industries: financial services, telecom and insurance. PeopleSoft and IBM, already close partners, have worked together on a number of development initiatives, but PeopleSoft executives said this agreement is their most far-reaching.

In his opening keynote at PeopleSoft's Connect user conference in San Francisco, PeopleSoft CEO Craig Conway praised IBM, calling it the company with "the most proven, trusted, tungsten-strength middleware." He also took the opportunity to blast SAP, whose applications compete with PeopleSoft's and whose new middleware platform competes with IBM's. SAP's NetWeaver middleware software is "young, largely acquired and

incomplete," Conway said.

PeopleSoft and IBM together will invest $1 billion over the next five years in their joint activities, Conway said. PeopleSoft's move toward embracing IBM's middleware echoes one made by J.D. Edwards in 2002, before its acquisition by PeopleSoft. J.D. Edwards decided to standardize around IBM and integrate its middleware into its own applications.

The IBM deal is essentially a formalization of PeopleSoft's existing strategy, says Liz Roche, an analyst at Meta Group.

"To a certain extent, they had to announce something to compete with SAP's NetWeaver and Siebel's [Universal Application Network]," she says. "I don't think this is market-changing."

One PeopleSoft customer running an Oracle/Windows XP infrastructure — Andy Nallapan, Agilent Technologies Americas HRIT development manager — says he favors the IBM alliance because it could make it harder for Oracle to succeed in its bid for a hostile takeover of PeopleSoft.

Cowley is a correspondent with the IDG News Service.

BMC updates event software

■ BY DENISE DUBIE

BMC Software last week released two upgraded software applications and a partnership with Business Objects, all of which the company says will help customers determine, track and report on how network troubles affect applications and service levels.

BMC Event Manager 4.1 can automate corrective actions based on policies customers create in the software. Rather than writing scripts to automate actions, network managers can build the "if, then" policies using Event Manager and the software would take the action. For instance, Event Manager can be configured to track events in relation to a specific application and apply time-sensitive policies to automate the response to the event.

Event Manager software sits on a Windows, Solaris, AIX, HP-UX or Linux server and collects data from managed systems using polling or querying technologies. The software also can collect data from existing BMC or third-party software agents on machines.

"A solid event management system is core to building a service

management system," says Mark Ehr, a senior analyst at Enterprise Management Associates. "BMC is working to tie events from all their systems together and make it easier for customers to make sense out of all the data."

BMC competes with Computer Associates, HP and IBM Tivoli software for event management software dollars, and the company is looking to make its event management system part of its broader Business Service Management (BSM) strategy.

CA, HP and IBM also tout product road maps that would help customers define, track and resolve problems with the IT components and services associated with specific applications and processes deemed critical to the business.

Another addition to its BSM strategy is its upgraded service-level management (SLM) software. SLM Express 1.4 lets IT managers set warning levels when an IT action might breach a service-level agreement (SLA) with customers or service-level objective (SLO) with internal users. The software would note trends and alert staff in advance of the potential SLA breach, BMC says.

SLM Express 1.4 sits on a server,

collects data from IT components such as servers and databases, and compares the performance from IT components with the pre-defined SLAs and SLOs. The software alerts staff if IT performance problems are going to make it difficult to deliver on preset terms. SLM Express also gives IT managers accurate data on the service levels the network can deliver to aid in constructing SLOs with internal users and SLAs with customers.

Both products use new reporting capabilities BMC added through a partnership with Business Objects.

BMC's Patrol Reporting software includes reporting capabilities through an OEM deal with Business Objects, which can help customers automate SLA reporting. IT managers also can use the reporting software to dynamically drill down through events to see underlying data and determine the source of service troubles. The software delivers reports via a single Web portal for Unix, Windows, Oracle and Exchange machines.

Pricing for BMC Event Manager 4.1 starts at $50,000. Pricing for SLM Express 1.4 starts at $5,000. Base Patrol Reporting is free to all Patrol customers. ■

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'NET INSIDER
Scott Bradner

Tattletale WebEx

I admit it. When I'm on the phone with a sales 'droid I don't devote my full attention to his or her exhortations of product greatness. Instead, I tend to read e-mail, surf the Web or maybe even do a little work. Now WebEx wants to make that harder. To me, this is just another reason not to use its service.

The economy must be picking up — at least to judge by the number of unsolicited calls I've been getting from salespeople. (Aside: I still can't figure out why the do-not-call list doesn't apply to business as well as residential phones. How is it less disrupting to intrude on my business day to tell me about something that I have no

interest in than interrupting me watching the evening news?)

Each of these salespeople seems to think, or at least is trained to pretend to think, that whatever they are selling is indispensable to me or Harvard. Most of them have little idea of the details of the product they have been hired to sell. This is made clear the first time I ask any substantive question.

One example from last week was:

"Just where do you install this magic box in the network?" The salesperson did not know, but wanted to set me up with an evaluation system anyway and was miffed when I said 10 minutes into the first call seemed to be a bit early in the process to be talking about evaluation systems.

I *try* to be nice, even though that is frequently very hard, as trying to talk about things like network security appliances with a sales 'droid who probably has to be reminded to plug in his computer can be frustrating. From time to time I admit that I

get rather direct about the lack of information transfer. In the 10% of the cases in which the salesperson seems to have a clue, or something on the company Web site overrides the clue-deflector shields protecting the salesperson, I agree to have a follow-up call with one or more people who are supposed to know the product.

Most of these are conference calls, the regular kind where slides are sent to me beforehand and the conferencing equipment locks everyone out when someone is talking.

But some of the time, the company wants to use WebEx instead.

I've tried WebEx a few times but generally have had problems running it on my Macs, even though the company claims to support them. So I use that as an excuse not to try again. In reality, even if WebEx worked perfectly every time I'd still be reluctant to use it because of all the software it installs on my machine. I don't like systems that do

stealth installs of software over which I have no control.

Now WebEx has announced that its new software will tell the meeting operator when the WebEx software on the client is not in the foreground, for example when you are checking your e-mail. That seals it — no more WebEx for me.

I wonder if WebEx ever thought about the psychological impact of its new feature. I can't see how people at the company would not have unless they are somehow used to their activities being monitored by people they don't know.

Disclaimer: I used to work in Harvard's Psychology Department, whose undergraduate concentrators would understand the issues here better than WebEx seems to. But I didn't consult any of them for this column.

Bradner is a consultant with Harvard University's University Information systems. He can be reached at sob@sob.com.

IronPort

legal battles. Earlier this month SpamCop settled a case with Optinrealbig.com, in which the e-mail sender charged SpamCop with defamation and unfair trade practices. Terms of the settlement were not disclosed.

Weiss says IronPort is looking beyond just fighting spam to network abuses as a whole because organizations are dealing with more serious threats than the headaches of junk e-mail. So is the rest of the industry; few vendors are selling just anti-spam filters as they jockey to meet companies' e-mail security needs.

And while anti-spam companies are bulking up their offerings — CipherTrust recently launched a reputation-based authentication tool, and Symantec has relaunched Brightmail's anti-fraud service — large security vendors that want to sell their customers spam protection would rather acquire existing technology than reinvent the wheel. The result is an industry in transition, as large companies snap up small ones and anti-spam vendors attempt to distinguish themselves in a bid to remain standing after the pending shakeout.

The most notable acquisition so far was Symantec's $370 million purchase in June of Brightmail, an anti-spam filter maker that many thought would become the first publicly traded company in the sector. More consolidation is expected, but there also will be room for a few independent players, says Forrester Research's Jonathan Penn, who concurs with Radicati that IronPort could be one of them.

Weiss says he isn't eager for IronPort to become the anti-spam market's first public company, a distinction that would generate significant attention and could point to how this market will shake out.

"You can either be first, or you can be best," says Weiss of going public. "It's never

been a goal at IronPort to be a public company, but a large, profitable company."

IronPort won't reveal financial information, other than to say that revenue for 2004 will approach $35 million (see graphic, above).

While most anti-spam companies put extensive resources into developing their own technology for detecting and catching unwanted messages, IronPort relies on SenderBase, its reputation service with a database that logs how much e-mail IP addresses are sending, to distinguish its appliances. "We get paid for the appliances. That's where the revenue comes from, but SenderBase is the brains," says Tom Gillis, IronPort's senior vice president of worldwide marketing.

SenderBase collects data by tracking mail sent to the in-boxes of its appliance users to determine which IP addresses on the Internet are sending the most messages. This information is delivered to IronPort's customers as a service; organiza-

tions can decide whether to block traffic coming from high-volume senders. "We don't pass any judgment on the data, we present it to the customer in an informed way," Gillis says.

The company says that by providing this information, SenderBase places IronPort above the competition. But a competitor says that without its own patented e-mail filtering technology, IronPort is in a precarious spot.

"Given that they don't have expertise around spam [technology] specifically — they license it — puts them in a really challenging position," says Sandra Vaughan, senior vice president of marketing with Proofpoint, which sells anti-spam appliances and server software. "They're not really in control of their destiny from that standpoint."

However, it was this licensing of spam filters that led Key Services, the IT management company for Key Bank, to choose IronPort when evaluating anti-spam products last year.

"I think the fact that they're willing to partner with [other vendors] rather than come up with everything in-house will work to their advantage," says Mark Fitzgerald, Key Services' technology specialist. The company has 20,000 e-mail users and was looking for an appliance approach to fighting spam, but also wanted to use Symantec's filters because of their low false-positive rate.

Fitzgerald chose IronPort to get this combination, but also because the company focuses on technology such as SenderBase that goes beyond spam filters. Since e-mail passes through IronPort's reputation filters first, "it's not slowing down the mail flow by having to check every single e-mail against the Brightmail filters," he says.

IronPort plans to take what it learns from SenderBase regarding spam and apply it to other network abuses. For example, the company this month will release its Virus Outbreak Filters for its gateway appliances

that spot and trap viruses based on a number of clues, such as a high volume of messages sent from a new IP address that also contain the same file type attachment and have similar content. The company is considering a similar approach to catching phishing attacks.

IronPort also sells e-mail appliances dedicated to sending commercial messages that include delivery controls designed to increase the chances of mail being received, instead of caught in spam filters. While IronPort maintains it only sells these appliances to legitimate e-mail marketers, a competitor says IronPort is contributing to the overall spam problem.

"You're buying Kevlar vests from the people who make bullets, too," says Mike Rothman, vice president of marketing with CipherTrust, which also makes e-mail security appliances. "IronPort is arming the people we spend all day and night trying to defeat."

Forrester's Penn disagrees that selling appliances to mass e-mail senders is a questionable business. "Is it unethical to sell something to Travelocity or American Express? They need to do high-volume messaging," Penn says. "Just because you send out a lot of e-mail doesn't mean you're a spammer." ■
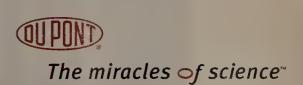
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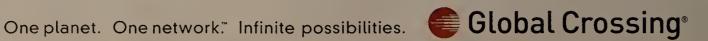
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Service Providers

Q & A

IPv6 expert sees adoption growing . . . slowly

For a decade, network executives have been awaiting the arrival of IPv6, an upgrade to the current version of the Internet Protocol, IPv4. IPv6 promises a dramatically larger addressing scheme as well as enhanced security and easier administration. Senior Editor Carolyn Duffy Marsan recently interviewed **Jim Bound,** *chair of the North American IPv6 Task Force and CTO of the IPv6 Forum, about the status of IPv6 deployment. A Hewlett-Packard Fellow, Bound is a contributor to the IPv6 specifications and an early implementer of the technology.*

Years ago, people talked about a future where all sorts of household appliances — toasters, coffee pots — would be hooked up to the Internet. This was part of the rationale for IPv6. What is the current thinking about Internet-enabled appliances?

The IPv6 Forum is not seeing any new announcements regarding Internet appliances. The reason for that is we don't have an IPv6 infrastructure. Japan is the only country that has a native IPv6 production network. All the providers in Japan are on that network. In fact, the Internet backbone in Japan is IPv6-enabled. They're still all pilot projects in other countries. The hype of Internet appliances is going to become a reality. . . . That's going to take five to eight years.

What is the status of Moonv6? [A native IPv6 backbone jointly operated by the North American IPv6 Task Force, the University of New Hampshire's Interoperability Lab, the Department of Defense and the Internet2 university consortium.]

Moonv6 is going to be one of the saving graces for IPv6 in the U.S. We hope to have most U.S. providers onboard as Moonv6 peering sites very, very soon. We have [memorandums of understanding] with China's next-generation Internet project, the 6NET in Europe, and we're working with the Korean IPv6 project. Our focus is now to get Moonv6 peerings.

Moonv6 is a backbone of agreed-upon peerings in the Internet. We have a site in Chicago with [Internet2's] Abilene, one at the University of New Hampshire and we'll have one in Palo Alto soon. The Army's Joint Interoperability Test Center also has a site. These sites agree to route traffic over native IPv6. We will permit tunneling for a grace period, but we're moving to native IPv6.

Which U.S. service providers are on Moonv6 right now?

The ISPs we are speaking and working with regarding Moonv6 are NTT Verio, AT&T, Sprint, MCI, and Verizon, but we're putting requests out for all ISPs in North America. In addition, we are speaking with ISPs in Europe and Asia.

How long is it going to take for an IPv6 infrastructure to be commercially available in the U.S.?

It's going to take a couple of years. I think 2006 is going to be the big year. The vendors have done a wonderful job of shipping products. They've done a wonderful job of marketing and PR. But we've got two years worth of work. We still do not have the applications. How can GM or JC Penney or Boeing move to IPv6 when there are no applications for it? That would be insanity. We need applications like Oracle, PeopleSoft and SAP to be IPv6-compliant. We're talking to those folks now.

NTT Verio has been offering commercial IPv6 service for three years but the

Short Takes

■ **Nortel** last week unveiled a GSM/Universal Mobile Telecommunications System wireless base station the company says lets wireless operators lower operational costs and offers 3G services. Nortel's GSM-UMTS Base Transceiver Station 18000 is designed to support GSM and UMTS wireless technology standards, and to address the increasing number of voice and data subscribers. It will let operators reduce operating costs by handling up to 50% more voice and data subscribers per base station compared with other commercial dual-mode base stations, Nortel says. The unit limits the need for the costly cell splitting often used to increase wireless network capacity.

■ **The MPLS & Frame Relay Alliance** announced last week that six new members have joined the group. The new members are BellSouth, the Defense Information Systems Agency, Data Connection, Huawei Technologies, Seranoa and Telefonica. In April 2003 the MPLS Forum and Frame Relay Forum merged to create one group focused on "advancing the deployment of multi-vendor multi-service label-switching networks," according to the group.

Alcatel takes to the ROADM

Adds capabilities to 1696 Metro Span DWDM system.

■ BY JIM DUFFY

Alcatel this week will unveil extensions to its metropolitan dense wavelength division multiplexing platform in an effort to make it more appealing to service providers looking to reduce the cost of provisioning new services to enterprise customers.

The company is adding reconfigurable optical add/drop multiplexing (ROADM), wavelength monitoring and support for around 370-mile spans to its 1696 Metro Span system. Metro Span is an optical transport system for metropolitan-area networks that helps service providers provision TDM and data services, such as voice, data and video "triple play," storage-area network extension, enterprise Ethernet connectivity and third-generation mobile services.

The 1696 also aggregates TDM circuits to optimize bandwidth and supports 32 10G bit/sec wavelengths.

The ROADM and wavelength-monitoring extensions were obtained through an investment Alcatel has in Tropic Networks, a ROADMs maker that incorporates a wavelength-monitoring technology Tropic calls Wavelength Tracker. The 370-mile distance extension was developed by Alcatel.

The ROADM capability lets service providers remotely provision and reconfigure wavelengths. This helps minimize operational expenditures by reducing the number of truck rolls required to upgrade and maintain metropolitan and regional transport networks, Alcatel says.

Also, ROADM lets service providers design networks once yet provision circuits and services as often as needed, regardless of traffic forecasts. Service providers can turn up services quicker and react faster to evolving markets without affecting in-service traffic, Alcatel says.

These features add up to cost efficiencies when provisioning wavelengths in the metropolitan area, the company says.

ROADMs are in vogue. Various market research firms say ROADMs will grow from a less than $100 million worldwide market currently to hundreds of millions of dollars in the next few years.

At the Supercomm trade show in June, vendors such as Lucent, Cisco, Movaz Networks and Mahi Networks unveiled ROADMs to address carrier RFPs for automated metropolitan-area service provisioning with

MCI isn't the bargain would-be buyers envision

Word is that MCI's on the block, five months after formally emerging from bankruptcy this spring. The company will reportedly be sold in pieces rather than as an integrated entity. The consumer business would be sold to a private equity firm, and the enterprise business unit picked up either by BellSouth, SBC, Qwest or Verizon, or a professional services firm such as IBM or Electronic Data Systems.

With all due respect to the hardworking folks at MCI, I've got two words for anyone looking to buy a piece of it: caveat emptor.

Yep, buyer beware. MCI's proposed new deal structure is clearly targeted to appeal

to two types of buyers: telcos that don't want or need a consumer-services business, and professional-services firms that want to enter the telecom market but lack networks. For both, the deal appears to offer the killer combination of a blue-chip enterprise customer list and a world-class network.

Not so fast. Both the assets MCI is attempting to showcase come with hidden gotchas.

Take that world-class network. MCI originally was created by amalgamating dozens of smaller telcos with disparate switching infrastructures, operations support systems and business support systems — leaving enormous redundancy and complexity in the infrastructure. In short, operationally that network is an unholy mess.

Telcos know this. That's why MCI isn't already part of, say, SBC or BellSouth. As one telecom executive put it, "Sure, I'd buy MCI, for the right price. I'd shut down their net-

work and take their customers." His point was that operating MCI's network wouldn't be cost-effective — so he'd acquire the customers and switch them to his company's network.

So for MCI's enterprise customers, a sale to another telco brings the strong possibility of getting switched to another network — with all the concomitant disruption. Who needs the hassle? Enterprise customers that want to be on the networks of Verizon, Qwest, SBC or BellSouth can move there today — and probably negotiate better terms and conditions than they'd get by enduring a post-acquisition forced switch.

And that blue-chip customer list? Potential purchasers — telcos or not — need to be supremely cautious of the promise of "acquiring customers." Remember when MCI sold its Internet business unit to Cable & Wireless for $1.75 billion in 1998? C&W subsequently sued MCI for failing to transfer the customers it

promised. MCI's defense was that it couldn't force customers to stay with the new owners — which would apply here as well. C&W ultimately divested itself of its U.S. operations for a measly $125 million in a bankruptcy fire sale last December. Clearly the strategy of acquiring MCI's customers failed miserably for C&W.

MCI's back-up strategy is to try to sell the enterprise business to companies that aren't traditional telcos and therefore don't have their own networks. But if such companies really want to get into the telecom business, they'd probably be better off building a new network from scratch — one that's designed from the get-go to be operated efficiently.

As noted: caveat emptor.

Johnson is president and chief research officer at Nemertes Research, an independent technology research firm. She can be reached at johna@nemertes.com.

Alcatel
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reduced operational cost.

SBC is one such carrier that has issued a ROADM RFP. Alcatel/Tropic and Lucent/Movaz are considered to be front-runners for that business, although neither will discuss the bid nor SBC's specific requirement.

"[ROADM] gets Alcatel in the game for these RFPs," says IDC analyst Sterling Perrin. "It's a feature that [carriers] are demanding."

SBC recently announced that it will invest up to $6 billion to bring fiber to neighborhoods. ROADMs will help manage massive amounts of bandwidth for applications such as video on demand, and to flexibly provision services, Perrin says.

The Wavelength Tracker addition identifies and traces each wavelength individually at any point in the network without requiring an expensive electrical conversion, Alcatel says. Service providers can gain visibility into the activity of each wavelength for network operations and maintenance, and for service-level agreement monitoring, the company says.

The 370-mile distance extension lets service providers deploy the 1696 in regional applications as well as metropolitan applications. The previous distance limitation was 248 miles.

Up to 16 1696 nodes can be configured in a ring with a circumference of 370 miles, Alcatel says.

These new capabilities are in trials with 1696 customers. Pricing was not disclosed. ■

Alcatel's adds

Three key extensions to Alcatel's 1696 Metro Span DWDM system:

- Reconfigurable optical add/drop multiplexing (ROADM) — enables remote adding and/or dropping of circuits.

- Wavelength Tracker — monitors individual wavelengths without electrical conversion.

- Support for about 370-mile spans — enables regional deployment in addition to metropolitan.

Q A

Bound
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company admits it has few customers. Are there any new developments in terms of commercial IPv6 offerings from the ISPs?

No, there isn't. NTT is way ahead of the curve. NTT had a site up for the 6Bone [an IPv6 test network] back in 1998 or 1999. The IPv6 Forum is holding a meeting Nov. 16-17 in Washington, D.C. that is focused on ISPs. We're going to ask them about their plans for commercial offerings.

What's the latest thinking in the IPv6 technical community about the integration of RFID and IPv6?

RFID will never use IPv6 addresses. RFID is an identifier. It will be used to identify something — a box, an entity, a part. It has nothing to do with networking. It's about data warehousing. Now if you want to associate an IPv6 address with parts that are identified with RFID, then clearly having enough IPv6 addresses is important. IPv6 addresses could be used to make that which RFIDs identify available to a network. RFID is irrelevant.

Has the IPv6 Forum made any progress in attracting software developers to support IPv6?

IPv6 is in the thought processes at Oracle and SAP. It's on their radar screen. What I'm hearing is that 2006 will be the big year.

How big of a deal was it when ICANN announced this summer that native IPv6 would be supported in the DNS?

It was a big, big deal. Now if someone looks up an IPv6 address for an IPv6 device, they'll be able to find it on the DNS. It's another data point [showing] that IPv6 is happening. The fact that the DNS root servers are running IPv6 means this technology is pretty stable and that there are products out there. It's

significant that [Internet Corporation for Assigned Names and Numbers] was comfortable with IPv6 and that the vendors who run the DNS were comfortable with IPv6.

What's the latest with the IETF's work on a specification to support multi-homing in IPv6? [Multi-homing involves using multiple ISPs and switching between them for the best connection.]

It's in process in the IETF. I believe that work is going to take some time. It's a very, very important problem to solve. But it doesn't prohibit IPv6 deployment today. If Verizon or General Motors wants to do multi-homing in IPv6, we can do it just like we would do it for IPv4. They would agree to share routes, and that's how you address multi-homing. It's no worse than it is for IPv4. The hope is that the IETF can build a standard for multi-homing in IPv6. Within one year, you'll see a solution emerging that has potential. Moonv6 will be spearheading the multi-homing solution for today and tomorrow. We will aggressively test any potential ways to solve that problem.

Is there any other significant technical work related to IPv6 that's still outstanding at the IETF?

No. The IPv6 operations group is pushing very aggressively to develop IPv6 transition scenarios. The IETF shipped the Mobile IPv6 specification about two months ago. With IPv6, I have no complaints with the IETF.

What news can we expect to see regarding IPv6 for the rest of the year?

You'll see more tests across the whole North American geography and tests between continents across Moonv6. Hopefully, you'll see some announcements regarding ISPs offering IPv6 service. Hopefully, you'll see announcements regarding Internet appliances at the Consumer Electronics Show. Developers will be running test suites on Mobile IPv6. These will all be newsworthy. ■

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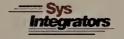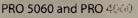
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Application Delivery Challenge

Robin Layland

Layland Consulting, Lead Analyst and Moderator

Welcome to the Application Delivery Challenge where I present the pressing networking problem of how best to connect the data center to the network.

With network managers facing a myriad of data center issues from server performance to application availability, this Application Delivery Challenge presses vendors to answer those concerns. I've invited five vendors to share their views following this introduction on how best to connect the data center to the network.

Data center consolidation and Web-centric computing put new demands on networks while network managers are under constant pressure to provide support for a growing range of applications from companies such as SAP, Oracle, PeopleSoft, Lotus Notes and Siebel Systems. At the same time corporate management is pushing IT to reduce the cost of servers. End users are always demanding faster response time. Add to this mix increasing creativity of hackers and attackers who put more pressure on the security of the data center. The servers can't provide all the protection and security that's needed. Network managers must come up with a solution that provides high availability, high throughput, flexibility, scalability and help with management.

One thing is sure, the solution can't be just an Ethernet connection. Network managers must provide a more complete solution. A solution that supports the growing data center and increasing range of applications, keeps costs in line, reduces response time and protects the data center.

An intelligent network solution is needed that controls and secures the data center. The old solution from the late 1990s – server load balancers — needs to take an evolutionary jump to meet the new requirements. It is time for a new generation of network equipment in the data center: an Application Front End (AFE).

AFE can be thought of as the part of the data center that network managers are responsible for. That could include Layer 2/3 switching that network managers have provided for years, plus an application manager that reduces the load on servers, improves response time and increase security. (The architecture of the AFE is shown in the diagram on the next page.)

The AFE addresses several key areas:
- Application and server performance.
- Application availability.
- Security.
- Scalability.
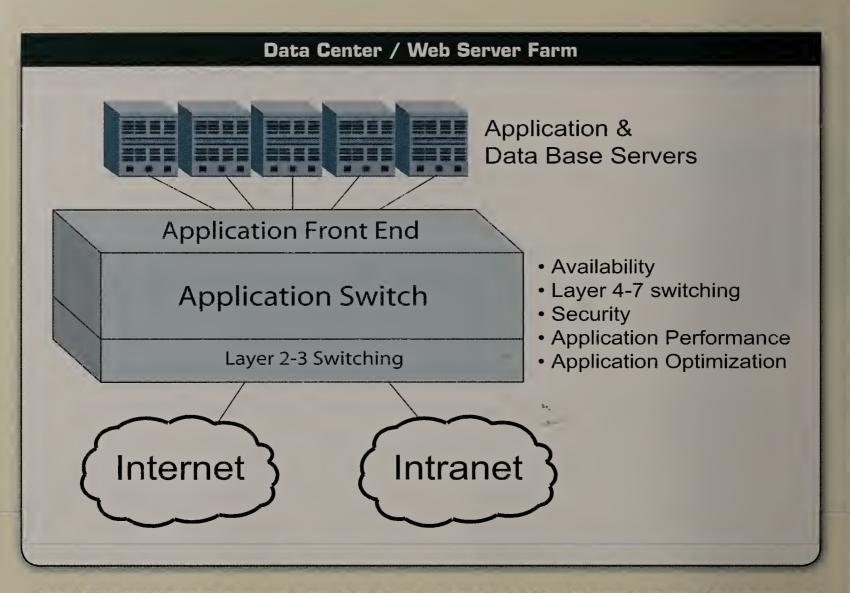
An AFE improves server and application performance by applying a set of techniques that include TCP offload and connection reuse/multiplexing, compression, SSL and HTTP processing and caching.

There is no reason to waste server resources processing TCP. The AFE reduces the load on the server. Requests to applications use a large number of short-lived connections that deliver just a small bit of information. A complete transaction might require a large number of connections that require the server to spend time processing TCP startup (SYN) packets. This processing can consume a significant amount of the server's resources. This load can be reduced by terminating the session inside the AFE. Servers spend little time processing TCP connections because the AFE can keep many connections open to the server, making it think it has a set of long lasting connections. When a session request comes in from a client to the AFE, the AFE handles the overhead associated with the TCP connection and matches the client's connection to one of the connections it already has to the server. This can save a significant amount of server cycles. This technique is called connection reuse or TCP multiplexing.

> *The AFE can be thought of as the part of the data center that network managers are responsible for.*

The AFE further reduces the load on servers by performing the SSL processing. Again freeing server cycles to be applied to real business applications.

Data Center / Web Server Farm

Application & Data Base Servers

Application Front End

Application Switch

Layer 2-3 Switching

- Availability
- Layer 4-7 switching
- Security
- Application Performance
- Application Optimization

Internet

Intranet

The AFE's performance gains are not limited to just saving server cycles. By implementing advanced compression features it improves the applications response time and reduces the load on the WAN. Without compression, an application has to send more packets to complete a transaction. With compression, fewer packets are required. For example, if a transaction normally takes five packets, with compression this could be reduced to two packets. Fewer packets mean less WAN resources are consumed and faster response times. This saves WAN bandwidth, pushing out the date for the next WAN upgrades, saving a significant amount of money.

> *One thing is sure, the solution can't be just an Ethernet connection. Network managers must provide a more complete solution.*

The AFE also speed up response time by providing caching for applications. Caching allows the AFE to respond to the user's request, cutting out the time it would take for the server to get the request and respond. Advanced AFEs can provide this service for static and dynamic pages and information.

Ensuring high availability is a key function for the AFE. It must constantly monitor the health of applications and servers, taking action to redirect traffic when they are slow and not responding. The older server load balancer provided some ability to improve availability but the AEP takes it to the next level by providing even deeper packet inspection. Deeper packet inspection allows the AEP to better understand what is happening with not just the overall health of the server but also to better understand what is happening with the applications. This increased intelligence allows the AEP to recognize how an application is performing and take immediate action.

The AFE also plays an important role in securing the data center. It constantly monitors the environment for hackers and intruders who are trying to penetrate the data center. For example, when a denial-of-service attack is launched at the data center, the AFE's ability to terminate connections and understand the larger picture puts it in an ideal position to detect and eliminate the threat. The servers never even know that there was an attack. The AFE can also provide a range of VPN servers to protect the user's connection to the data center.

The AFE solution needs to be flexible and scalable. First it needs the ability to scale from a small Web server farm to a large data center. It needs to have the ability to handle a large number of concurrent connections and handle large volumes of traffic without affecting performance. AFEs can intelligently communicate among themselves to provide a seamless solution even across geographically diverse server farms. Secondly, the AFE needs to understand a wide range of applications and servers to provide a complete data center solution.

If the AFE fails, all its advance functions would be useless and the failure would cripple the data center. Thus the AFE equipment must have high availability. Vendors need to provide solutions that rarely fail. When the rare failure does occur, vendors need to have a backup strategy that protects the data center.

The AFE can meet network managers' challenges in the data center. Several vendors have made to leap to the new AFE while others have not. I've challenged five of the new application management AFE vendors that have made the leap – Foundry Networks, F5 Networks, NetScaler, Array Networks and Redline Networks – to explain why their solution is the best solution for your data center. This will provide an overview of the strengths of each of the vendors and help you decide which one is best for you.

I have asked the vendors to focus on the application manager part of the AFE and to touch on the following issues:

High Availability
What contribution does the application switch provide to ensure high application availability by directing requests to a healthy server and notifying operations of problem servers?

Performance
What can you do to provide increased server performance and reduce end user response time?

Security
What security features do you provide to protect the data center and lessen the security load on the servers?

Applications Optimization
There are a wide range of applications running in the data center and most if not all of them need deployment support. What is your approach to application support and what applications do you support?

Scalability
The size and complexity of the data center server farm varies greatly for different size companies. How

> **The AFE is the complete solution network managers need to meet today's challenges in the data center and one will be appearing in your data center or server farm soon.**

flexible and adaptable is your solution? What features does your solution provide for geographically dispersed data centers?

While all the vendors in the challenge provide many of the same basic features, a close read will reveal each vendor's unique strengths. I also will gather four of the vendors together in a Webcast for a discussion of the key issues. You can view it at www.nwfusion.com/go/appdel.

Contact these leading AFE vendors for information on how they can apply their solutions to your unique situation. Information on how to contact each participating vendor is listed at the end of each vendor's presentation.

Robin Layland

Robin Layland
Layland Consulting
Robin@Layland.com

Robin Layland has been at the forefront of networking for the last 25 years as consultant/analyst and as a leader in the corporate world. During each stage of his career he has worked at implementing new technology. He spent a combined 15 years at American Express and Travelers Insurance in a wide range of jobs including network architect, technical support, management, programming, performance analysis and capacity planning. In the 1990s he was instrumental in moving corporations to IP. Layland speaks frequently at industry events and has published more than 100 stories on network strategy and technology.

To view the webcast visit
www.nwfusion.com/go/appdel

Gopala Tumuluri

Product Line Manager

"Deployed in thousands of enterprise and service provider networks worldwide, the ServerIron family is enabling organizations to scale their data center infrastructure to meet the demand for higher performance, higher reliability and increased security."

ServerIron Fortifies Business-Critical Enterprise Applications

Foundry Networks Solution Introduction

Enterprise reliance on networked applications continues to accelerate, and so does the demand on the infrastructure delivering these applications. Enterprise conversion to Gigabit servers and migration to 10-GbE aggregation in the core is well underway. These trends are placing new demands on the data center application infrastructure. Foundry's ServerIron family of purpose-built application switches addresses the new requirements, providing scalable, reliable and high performance solutions supporting 10/100/1000 to 10-Gigabit Ethernet connectivity.

High Availability Design with Investment Protection

The availability, security and scalability of an organization's data center are primary design objectives of the IT manager. ServerIron application switches provide a proven solution for achieving these goals. Deployed in thousands of enterprise and service provider networks worldwide, the ServerIron family is enabling organizations to scale their data center infrastructure to meet the demand for higher performance, higher reliability and increased security.
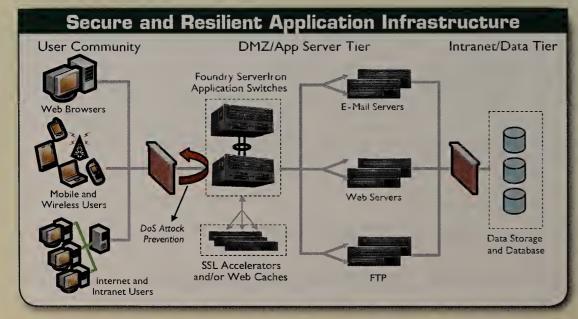
ServerIron performance upgradeability and port expandability optimize current capital investment while ensuring future investment protection. As the data center demands increase and applications evolve, organizations can easily add capacity or upgrade performance without a forklift replacement. ServerIron switches give Enterprises tremendous design flexibility and ability to migrate with changing needs without wasting invested capital. Hot-swappable redundant power supplies coupled with a highly reliable and secure real-time OS increase security and application availability.

IronShield™ Security for the Network, Server Farm and Applications

Today, malicious attacks pose the greatest risk of downtime to applications. IT managers require solutions that prevent and mitigate attacks, conserve server resources during these attacks while maintaining peak end-user service performance. Foundry's SYN-Guard™ technology prevents DoS, DDoS, and other attacks against servers. With its high-performance architecture, and innovative hardware-assisted algorithms, ServerIron switches lead the industry in attack protection with defense for up to 4.5 million attack packets per second. ServerIron switches offload the burden of network-level security from servers, freeing server resources for processing legitimate client traffic.

Spam has become more than just a nuisance, it is a business inhibitor that is costing hundreds of millions of dollars in lost productivity and compromised resources. ServerIron Spam-Def™ blocks Spam within the network, improving utilization, availability and scalability of the mail servers. ServerIron switches offer Spam blocking from up to 5 million blacklisted mail host networks.

Secure and Resilient Application Infrastructure

User Community — DMZ/App Server Tier — Intranet/Data Tier

Web Browsers · Mobile and Wireless Users · Internet and Intranet Users · DoS Attack Prevention · Foundry ServerIron Application Switches · SSL Accelerators and/or Web Caches · E-Mail Servers · Web Servers · FTP · Data Storage and Database

Web-Centric Enterprise Application Optimization using ServerIron

As Enterprise applications migrate to the Web, optimized and secure delivery of Web transactions and services have become more critical. While the ServerIron switches transparently support all IP applications, they offer rich support and customized features for Web Enterprise applications, including Oracle, BEA, WebShere, PeopleSoft and Seibel. With comprehensive HTTP and XML content switching, customizable health checks and scripting, and Web connection proxy to offload server connection management, ServerIron switches accelerate and scale Enterprise Web applications. Foundry's high-performance content switching delivers application-level QoS with user and transaction prioritization. Customized support for application-specific content, e.g., BEA WebLogic HTTP cookies, is integrated into the ServerIron OS.

The ability to health check servers and their applications is another important requirement for application front ends. ServerIron switches support a variety of health check capabilities including scripted health checks for flexible support of a wide range of applications.

TCP connection management burdens servers by 30-40% on average. Short-lived Web sessions are particularly troublesome in this regard. Foundry's ServerIron web acceleration minimizes connection overhead on the servers by reducing the total number of connections, increasing available resources for server application transaction processing.

Perfect Choice for Network Managers

The ServerIron features advanced routing features including RIPv2, OSPF, VRRP and VRRP-E, enabling network operators to cost-reduce and simplify their network designs by reducing the number of different network elements. Featuring a Cisco-like command line interface (CLI), the ServerIron switches are easy to configure, manage and troubleshoot.

ServerIron switches also support sFlow, a standards-based technology for monitoring traffic flows throughout the network (IETF RFC 3176). Armed with real-time traffic statistics, network administrators can take quick corrective action to protect critical infrastructure resources.

Performance, Scalability and High Availability for Enterprise IP Applications

The performance of an application front end is often specified using the metric, "connections per second (CPS)." A connection includes connection establishment, application request/reply exchange and connection termination. Foundry switches lead the industry in CPS performance supporting as many as 320,000 layer 4 and 150,000 layer 7 CPS.

Scalability is critical to accommodate evolving application demands and business growth. It is measured by port density, performance and throughput. The ServerIron solution scales from fixed 16-port 10/100 Ethernet switches to modular switches configurable to 112 Gigabit ports, and upgradeable to 10 Gigabit Ethernet. In addition to wire-speed Layer 2/3 switching for pass-through traffic, the switches

deliver up to 12 Gbps of application traffic management.

Distributing applications among multiple servers and using an application switch to detect and react to failures increases application availability. However, to protect against application switch failures, Enterprises need high-availability support. ServerIron switches feature many advanced high availability modes including active-active and active-standby.

Enterprise Data Center Scalability and Disaster Recovery

Global Server Load Balancing (GSLB) enables geographically distributed applications for scalability, redundancy and disaster recovery. Foundry's GSLB solution is quick to deploy, easy to manage, and highly scalable, and operates transparently in any DNS infrastructure. A choice of metrics is available for site selection to optimize performance, utilization or response time. IP-based GSLB provides redundancy and disaster recovery for non-DNS based applications. IP GSLB integrates site selection intelligence with standard routing protocols to direct user requests to the best site.

The success of a data center design is determined by how well it performs in three fundamental areas—availability, security and performance. Foundry's ServerIron application switch family is the industry's leader in all three categories, providing an extensible and proven solution for secure, high-performance and resilient application infrastructure.

Products and Pricing

ServerIronXL
- 16- and 24-port 10/100 switches with optional Gigabit uplinks
- Prices start at $8,995
- 20,000 L4 CPS

ServerIronGT E-Series
- Expandable appliances in 2- and 4-port Gigabit, and 2-port 10 Gigabit configurations
- Prices start at $15,995
- 50,000 to 160,000 L4 CPS

ServerIron 450/850
- Modular 4- and 8-slot switches with up to 48 and 112 Gigabit ports respectively
- Prices start at $34,995
- Up to 320,000 L4 CPS

For more information please call
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Erik Giesa

Vice President, Product Marketing and Management

"F5's BIG-IP v9 is the most powerful, intelligent and adaptable application traffic management system on the market today — one capable of meeting nearly any application challenge. Perhaps that's why more than 60% of the Global 1000 use F5 and 9 out of 10 of the world's top financial services firms use or have standardized on F5."

The F5 Solution:

Securing, Optimizing, and Delivering Your Applications

At the core of BIG-IP® v9 is the fundamental difference between F5's approach and every other product on the market today. It's a solution that not only brings together necessary application traffic management functions like TCP optimization, Compression, Rate Shaping, Universal Persistence, Application Switching, SSL, Load Balancing, and Selective Content Encryption, but also unifies those services and makes them available to be applied to any IP-based application, not just Web applications. The enabling technology that unifies these application infrastructure services is F5's new Traffic Management Operating System (TM/OS), a fast application proxy.

Powered by independent client-side and server-side TCP stacks and a modular application services architecture, the underlying design of TM/OS manages the complete bi-directional application flow. As opposed to alternative packet-based solutions which only support HTTP applications and uni-directional flows, BIG-IP v9 provides complete visibility and control — giving organizations significant cost and infrastructure savings in bandwidth, server resources, and management while meeting any new application availability, security, reliability, or scaling challenge head-on.

Challenge: Ensuring Application High Availability

To be truly successful in providing high availability for applications, a solution must be able to virtualize any IP-based resource, not just HTTP. The reason is that we know that in most organizations, greater than 50% of applications are not Web-based but legacy protocols. And if they are Web-based, that's just the front tier of the application. If an organization cannot virtualize every tier of the application architecture, they are only solving one piece of the high availability challenge. BIG-IP v9 not only uniquely virtualizes any IP-based application or resource,

but those running IPv6 or a combination of IPv6 and IPv4. This enables an organization to apply the proven model of Web front-end high availability to their back-end legacy applications and the resources that drive the data for the Web front-end.
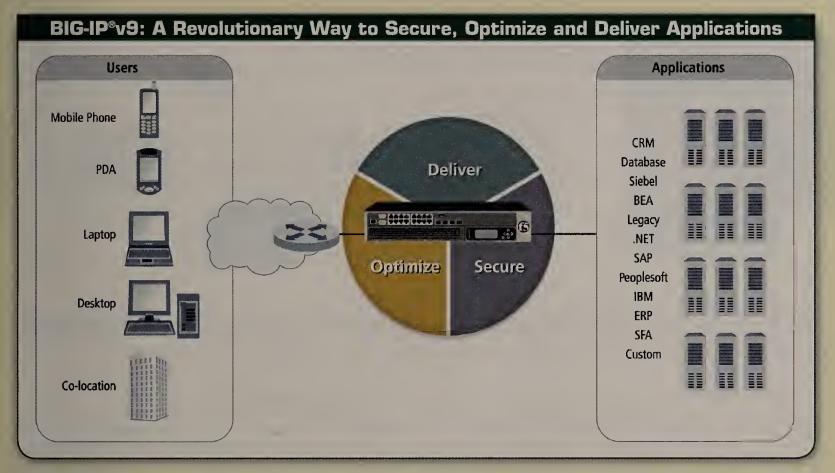
In order for this virtualization high availability model to work, the solution must be able to monitor all back-end resources including but not limited to tiered components like Web servers, Oracle and Microsoft databases, SIP resources, LDAP, and even SOAP-based services. The solution must be able to understand the performance or availability of all back-end resources before it makes a traffic management decision. BIG-IP v9 easily meets this challenge but takes it much further. Because BIG-IP v9 is based on an application flow architecture, it can "see" response errors and/or application exceptions on the return flow from an application, and can act on behalf of the client to redirect or re-load balance the request so that it can be successfully fulfilled, transparently to the end-user. Only F5 can perform this "transaction assurance" for any IP-based application or resource.

Additionally, BIG-IP can proactively inspect and respond to any server or application error. It also includes rich static and dynamic load balancing methods, and ensures that the best resources are always selected.

Challenge:
Improving Application and End-User Performance

BIG-IP provides a highly targeted, centralized and efficient means for reducing traffic volumes and minimizing the effect of Internet latency and client and application connection bottlenecks that affect application performance. BIG-IP provides rich support for compressing a variety of content types such as HTTP, XML, Javascript, or J2EE applications while optimally managing the TCP connections

BIG-IP®v9: A Revolutionary Way to Secure, Optimize and Deliver Applications

between client and applications. Application performance is accelerated by as much as 3-times, bandwidth utilization is reduced by up to 80% and the life of server resources is extended by up to 65%.

Flexible L7 Rate Shaping capabilities, not just simple rate queuing, ensure that priority applications are delivered without delay. BIG-IP v9 also uniquely provides customized control to set application-based bandwidth limits, allowable bandwidth spikes, and can even establish queuing relationships between applications. Extensive connection management capabilities optimize server performance and dramatically speed page load times.

Last, but not least, BIG-IP provides ground-breaking SSL acceleration, twice the nearest competitor, offloading this heavy burden from the application and server and delivering best-in-market SSL TPS, bulk encryption, and the highest concurrent SSL transactions available today.

Challenge: Improving the Application Defense

Because BIG-IP is the virtual entity that the client communicates with and because it can control the complete application flow, it can sanitize returned content from the servers and applications, cloak back-end resources, remove sensitive content, and even selectively encrypt cookies or any IP-based content found in the application stream. Full inspection capabilities and event-based rules greatly enhance the ability to define security policies that block access, disallow commands to be run and block known L7 attacks — all while allowing continuous service to legitimate traffic.

By acting as an authentication proxy and centralizing this function, organizations can provide top level authentication for applications at the BIG-IP system. BIG-IP also combines a suite of security features to provide comprehensive protection against DoS Attacks, SYN and Ack Floods and other network based attacks while protecting all backend systems and applications from malicious activity.
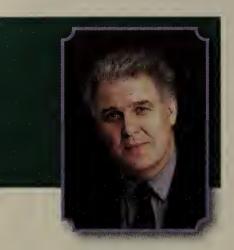
Challenge: Application Optimization

It all comes down to making applications perform better and having them successfully delivered. In order to be successful, the functions listed above must be available in a unified manner and be applied on demand across the entire application flow. This is BIG-IP v9's ultimate capability. iRules, a core component unique to F5, is the first fully programmable and event-driven language that can invoke any application service on behalf of the client or the application and server to successfully secure, optimize, or deliver that IP-based application. Now, for the first time in the networking industry, network teams will be ready for any surprise that an application team can throw at them.

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David M. Lynch

Vice President Marketing

"To be effective, an AFE must address all aspects of application deployment. It must understand both applications and servers and act intelligently to constantly optimize and secure application delivery to the end user."

A Holistic Approach to Application Deployment

Array Networks has worked with global organizations all over the world to develop and deploy Application Front End (AFE) appliances that fully solve ALL of the issues brought out in the challenge in a fully integrated and easily managed manner, making the Array solution the most complete AFE in the market today.

By examining the application performance characteristics of a wide variety of applications, we were able to identify common performance elements (i.e. server load, TCP connection handling, HTTP/SSL processing, bandwidth management and more). Our architecture optimizes all these common elements to improve the overall performance of ALL deployed applications, resulting in improved application delivery at every point from server to user, an excellent end user experience, and no restrictions on the type of applications to be deployed.

The Array appliance integrates a number of different capabilities including; Load Balancing, SSL acceleration, TCP offloading, connection multiplexing, data compression, and reverse proxy caching. And data flow through the appliance is constantly optimized by our Speed-Stack™ processing engine, resulting in more efficient application servers that are dramatically more responsive, especially under load.

> *Trusted by some of the largest organizations in the world, Array appliances are fully complimentary to existing network technologies and completely scalable to meet the needs of the largest user base.*

A single appliance can handle over 10,000 SSL transactions/second and customers have reported server utilization and response time improvements that range from 200% to 500% with a single implementation.

Availability / Scalability
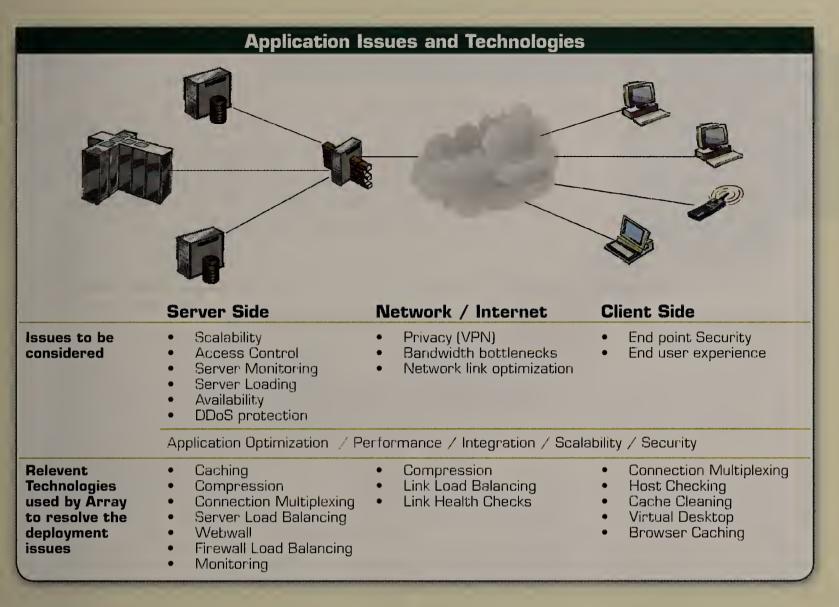
Array appliances start with full-featured server load balancing that is able to operate at both Layer 4 and Layer 7, and couple this with deep traffic inspection and application awareness, allowing high availability decisions to be made intelligently. Included link load balancing allows Array to failover traffic between internet links and save costs in the process by aggregating lower cost links to improve available bandwidth. For dispersed data centers environments, we provide Global Server Load Balancing and Disaster Recovery capability maintaining global high availability. And to complete this picture, we include Firewall Load Balancing that ensures that traffic to and from firewalls maintain a steady flow even if one goes down.

Active-Standby redundancy is a common (but expensive) way of providing high availability. Array appliances are clusterable (up to 32 appliances per cluster), in Active-Active configurations that only require a single redundant device even in configurations up to 32 Gbps and beyond.

Security

Array uses a "defense-in-depth" approach to provide the highest levels of security in the industry. This starts with a security hardened operating system, which is complemented with an integrated firewall (Webwall™), a full DDoS prevention layer with a "default deny" Reverse Proxy that protects against a wide range of attacks including forceful browsing, NIMDA and other content based attacks. For extranets, intranets, or managed services environments we offer an "instant DMZ" capability allowing enterprises to serve different classes of customers with delegated administration and management from one appliance.

Client side security is also provided and ensures that the user device complies with corporate security policies (i.e. personal firewalls, anti-virus software, approved

Application Issues and Technologies

	Server Side	Network / Internet	Client Side
Issues to be considered	• Scalability • Access Control • Server Monitoring • Server Loading • Availability • DDoS protection	• Privacy (VPN) • Bandwidth bottlenecks • Network link optimization	• End point Security • End user experience
	Application Optimization / Performance / Integration / Scalability / Security		
Relevent Technologies used by Array to resolve the deployment issues	• Caching • Compression • Connection Multiplexing • Server Load Balancing • Webwall • Firewall Load Balancing • Monitoring	• Compression • Link Load Balancing • Link Health Checks	• Connection Multiplexing • Host Checking • Cache Cleaning • Virtual Desktop • Browser Caching

browsers and OS, etc), prior to being connected. If corporate standards are not met, a virtual desktop is created completely isolating the device from the corporate environment — and ensuring that no information or access codes remain once the session is closed.

Application Deployment

SSL VPNs work well with web-enabled applications, but not all applications are web based. This presents a problem when a vendor's solution presents only one type of VPN technology. Array solves this problem by providing 3 different types of VPN technology that allows you to secure all of your diverse applications.

About Array Networks

Trusted by some of the largest organizations in the world, Array appliances are fully complimentary to existing network technologies and completely scalable to meet the needs of the largest user base. Deployed in 4 out of the top ten banks in the world, Array products can both secure and dramatically improve application performance, enabling more applications than ever to be extended safely to users without changing the network bandwidth or server infrastructure.

Array Networks provides the best suite of products for application deployment and secure access available

today. Built from the ground up to focus on the unique needs of the large organization, the Array Networks product suite provides organizations with:

1. The best ROI in the market.
2. The most comprehensive and integrated security available anywhere.
3. The highest performing products and the best application response to the user — bar none.
4. Award winning customer service and support.
5. A "pay as you grow" solution, scalable from 10 to Millions of concurrent users.

For more information, a more detailed discussion and a FREE industry whitepaper on application deployment:

www.arraynetworks.net/ applicationdeployment

Raj Kanaya

Vice President of Product Strategy

"NetScaler solves the core challenges of increasing application performance and scaling data center infrastructures, while reducing network complexity and operational costs."

Eliminating Application Bottlenecks

The NetScaler Application Delivery System heralds a new category of networking solutions, one designed to bridge the gap between network infrastructure and applications. Through its Request Switching™ architecture and innovative application optimization and security technology, the NetScaler system enables enterprises and eBusinesses to confidently deploy business-critical applications with exceptional performance, scalability and security.

Request Switching™ enables NetScaler systems to intercept and terminate incoming client connections to a Web server. The device can then inspect each application request and apply appropriate policies and features. For example, a transaction request may require authentication and encryption/decryption functions that a simple browsing request would not. Request Switching also allows NetScaler systems to take advantage of unique acceleration and security features that provide a superior experience for end users, while reducing operational costs and complexity for administrators.

NetScaler Application Delivery Systems exceed the requirements set by this Application Delivery Challenge in all key areas including high availability, scalability, performance, security and application optimization.

High-Availability

To provide high application availability, network infrastructures must be able to redirect application requests to redundant servers in the event of an outage. Traditional load balancers can determine when a server is not functioning and will re-route traffic to another server. NetScaler systems perform the same function, but take it a step further, using sophisticated health-check features to communicate directly with each application, not just the server. This enables the NetScaler system to determine when an application has stopped processing requests and to make a fail-over decision accordingly, even if the server on which the application is running is still functioning. This application-state health checking is available for both Web-based as well as traditional applications.

Another availability-related issue is an application traffic surge, which overwhelms a server with requests such that it exhibits symptoms similar to those of an application outage. NetScaler's surge protection technology allows administrators to pre-configure application traffic limits for specific applications, allowing requests to stay within limits while ensuring that all user requests are serviced without dropping traffic or connections.

Scalability

The ability to support multiple concurrent users is essential to an application implementation. As concurrent user counts increase, application delay typically increases, degrading overall performance. NetScaler systems offer application offload and other capabilities that allow administrators to ensure existing application servers are able to support an increasing number of users and requests. The NetScaler system's application scalability features include:

- **TCP optimization:** Reduces CPU-intensive protocol processing from application servers, enabling servers to support more concurrent user sessions with improved performance for end users.
- **Content caching (static and dynamic):** Serving data from an on-board cache improves performance by reducing the need to direct page requests to servers.
- **Global Server Load Balancing (GSLB):** Factors in attributes such as network latency when making routing decisions, based on network geography as well as network proximity. This combination provides a global traffic distribution system that ensures user requests are serviced in the most efficient manner.

Such features enable users to as much as triple the capacity of their existing server hardware and software, allowing them to stave off costly infrastructure upgrades.
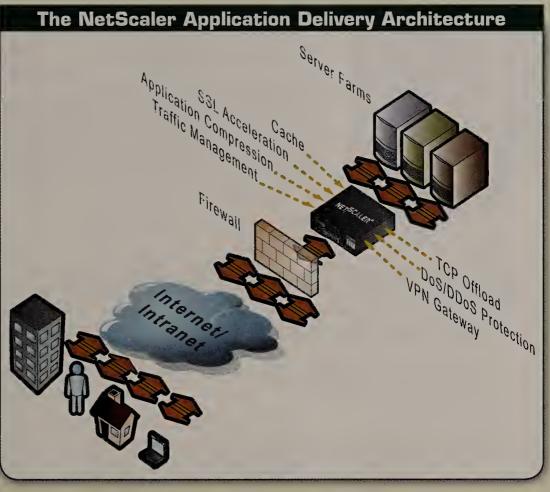
Performance

The NetScaler application delivery system offers a range of technologies designed to accelerate application access for all application protocols, not just Webified applications. NetScaler's application acceleration features include:

- AppCompress™ compresses Web-based application content, providing a dramatic performance improve-ment for users accessing applications across a WAN infrastructure.

- The recent addition of all TCP application protocol compression, AppCompressXP™, allows NetScaler systems to extend the benefits of compression beyond Web-based applications to applications using a multitude of TCP-based protocols, including FTP, NetBIOS, Terminal access and many others.

The NetScaler Application Delivery Architecture

- The NetScaler system's content caching removes the latency introduced when application requests require communication with external database and application servers, providing dramatic performance gains to end users. Examples of these applications include Oracle, PeopleSoft, Siebel and SAP.

- NetScaler systems offload complex SSL encryption/decryption processing from application servers, enabling the servers to focus on delivering application content while providing significant performance gains for SSL-based applications.

Security

Although security is often synonymous with firewalls and other perimeter defenses, increasingly applications are at risk of direct attack. These attacks often bypass perimeter defense systems, masquerading as legitimate application requests. NetScaler's AppDefend™ application defense technology includes features such as intrusion filtering to provide application payload inspection for all application traffic. This allows NetScaler systems to identify and discard any malicious application attacks, providing a powerful defense against application-based as well as traditional network-based attacks. NetScaler systems also include built-in defenses against various forms of distributed denial-of-service (DDoS) attacks, including SYN floods and ICMP attacks.

Application Optimization

NetScaler application delivery systems are designed to provide benefits for any and all applications, both Web-based and traditional. Industry-leading features including transparent, clientless compression for all TCP-based applications ensure that administrators can realize substantial benefits for their applications and infrastructure irrespective of application.

While NetScaler systems address each of the areas identified in the challenge, the real power is in combining features into a purpose-built, high-speed system that optimizes application communications while ensuring security and high-availability. By implementing multiple application networking features into a unified platform, NetScaler application delivery systems offer dramatic benefits while reducing network complexity and operational costs.

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Craig Stouffer

Vice President of Marketing

"For Redline customers gone are the days of cumbersome server load balancers and all of the required point products, as well as the typical network and server upgrades once thought mandatory for the delivery of Web applications."

Meeting the Challenge:

The Redline E|X series continues to set the standard for Web application delivery

Redline Networks developed a vision for a next generation 'front-end' for Web-based applications, which was a direct result of personal experience. The founders had developed and deployed Web applications but quickly realized that the traditional SLB solutions lacked a number of services that would assure high availability and performance. This experience and insight is what enabled Redline Networks to leapfrog the traffic management/ server load balancer (SLB) category by delivering an advanced full content inspection architecture, functionally well ahead of the packet and switch-based architectures dedicated primarily to server load balancing.

As enterprises started deploying more complex Web applications (like PeopleSoft, SAP, Siebel, OWA, custom, etc.), many organizations had similar experiences and sought the more application-oriented Redline solution, offering unprecedented boosts in performance, availability and scalability with enhanced flexibility and security, all

Case Studies

- A Fortune 100 oil and gas company was struggling to deliver its suite of SAP Web applications to users around the globe; that is, until it found Redline. It managed to complete the global roll-out, reduce page download times by 30% and bandwidth by 70%.

- Microsoft looked for help after facing performance challenges with its Siebel partner portal. After Redline downloads were 59% faster, bandwidth consumption dropped by 60%, and server capacity increased by 200%.
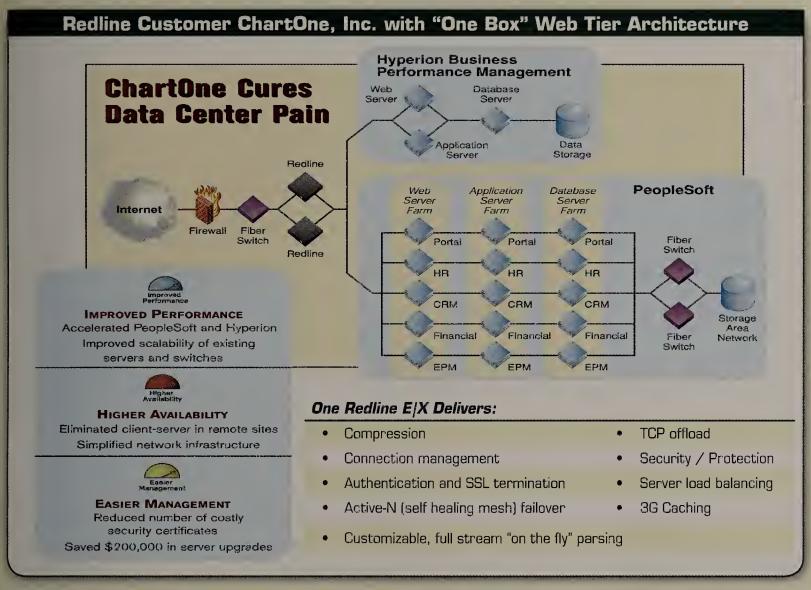
within a single box architecture.

Enterprises needed the ability to improve performance and security and availability and scalability, while having the flexibility to manage for the quirks of a multitude of browsers, network topologies and Web applications. The SLB was not only not enough, it forced enterprises into deploying a confusing array of Web tier point products, overbuilding their server farms and wasting limited resources on costly network upgrades and increased bandwidth consumption. The situation worsened as more Web applications were deployed.

Redline's full content inspection (based on HTTP proxy) architecture gave it the power and flexibility to deliver virtually all of the critical functionality required for business-critical enterprise applications, within an easier to manage (and more secure) one box architecture (see ChartOne network diagram on the following page).

Redline's platform approach, based on its more advanced architecture, also enabled a string of other breakthroughs still without parallel. A year ago Redline Networks announced its OverDrive™ control environment, which gives customers unprecedented control and flexibility by allowing them to write hundreds (or even thousands) of simple rules capable of changing entire streams of data on the fly, with sub-millisecond impacts on latency. For example:

A leading newspaper publisher created a few OverDrive™ application rules to enable its Web application to understand vanity URLs that had been slowing user response times to a crawl. The publisher saved hundreds of thousands of dollars on the network and server upgrades thought required to deliver just a modest improvement. The bandwidth savings alone paid for the Redline appliances installed. The publisher has since deployed more than a

thousand such rules to address challenges once thought unsolvable, with a minimal impact on latency.

To this day, while other vendors announce compression and other layer 7 features, Redline has added more unprecedented AFE capabilities; including a category first self-healing mesh failover, new and more powerful third generation caching and unprecedented AFE security advantages, again limiting any need for additional Web tier point products while minimizing security vulnerabilities.

For Redline customers gone are the days of cumbersome server load balancers and all of the required point products, as well as the typical network and server upgrades once thought mandatory for the delivery of Web applications. The performance gains and savings are substantial.

Redline continues to leverage its architectural advantage to deliver critical platform capabilities faster and with more user control/flexibility than any other solution in the category.

If you're looking for a proven, platform approach to Web application delivery, you no longer have to settle for outdated SLB architectures and wait years for "catch up" releases. You can reap the benefits of HTTP proxy without compromise.

Redline now has leaders in financial services, retail, travel and tourism, technology and energy as well as several of the world's leading automotive manufacturers as customers. You can read about their successes at www.RedlineNetworks.com.

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Net.Worker

Vendors vie to ease home net complexity

BY TONI KISTNER

There are three things you can count on: death, taxes and problems with a home network. Faced with a blank browser window, your users don't know whether the cause is a service outage, software conflict, malfunctioning adapter or misconfigured security setting.

Equipment leader Linksys receives a [?]0,000 help desk requests per month. Of those, nearly 70% are related to "initial installation and configuration," the company says.

Who calls the help desk?

A recent survey shows that

23%

of all broadband households call the help desk, 33% of whom call because they were concerned about wireless security.

SOURCE. PARK ASSOCIATES

If a customer needs to make two or more service calls to install and operate home network equipment, "satisfaction declines precipitously — as much as 25%," according to Parks Associates.

"The more home networking developers and providers can do to reduce service calls, the more satisfied their customers will be," says Kurt Scherf, vice president and principal analyst at Parks Associates and author of the new report: "Primary Perspectives: Complexity and Customer Satisfaction in the Networked Home" (see graphics, below and right).

"Brand loyalty is directly related to initial satisfaction, so home network players must reduce complexity if they hope to maintain a positive relationship with their customers," he adds.

When the market was new, technical users drove vendors to improve performance, interoperability and security. But now that mainstream users are clogging support hot lines, vendors are responding.

Chip makers, hardware vendors and software start-ups are coming up with ways to automate tasks such as IP addressing, Service Set Identifier (SSID) configuration and encryption key generation; they're developing diagnostic tools that find and often fix network problems without user intervention. Here's a look at

what's in the works:

At its Home Networking Day event in San Francisco Wednesday, Linksys plans to unveil a suite of software utilities that ease setup and configuration of Linksys Wireless-G and Speed Booster routers, and Intel Centrino notebooks.

Although Linksys wouldn't provide much detail by press time, it says the Smart Wireless tool, which it created in conjunction with Intel, lets Centrino notebooks automatically connect to a Linksys router. Other tools will provide network analysis and troubleshooting.

The Linksys utilities will officially ship this fall, but the company has been making them available for several months to customers calling the help desk.

"You download this app from our Web site and it'll check your network settings on Windows and make sure you're doing everything right," says Linksys product manager Mani Dhillon. "If you have the wrong firmware, it will download and install the right version and make sure your connection's up and running. On the help desk, it's been fixing 90% of users' problems."

Linksys is expected to forge a similar partnership with Broadcom to offer Broadcom's configuration utility SecureEZSetup, which it announced last May, with Linksys products using Broadcom chips.

"We want to make sure that no matter what PC or laptop you have, we can support it," Dhillon says.

Like Intel's Smart Wireless utility, SecureEZSetup asks end users two questions: birth date; and one of a choice of mother's maiden name, street you grew up on or pet's name. The answers are put into a hashing algorithm that generates the Wi-Fi Protected Access (WPA) keys.

Some in the industry, including wireless chip maker Atheros, have expressed concern that simplifying encryption key generation using this question/answer scheme "dumbs down" security, and makes the network vulnerable to dictionary attacks.

"There is a way to simplify security without compromising," says Colin Macnab, vice president of marketing and business development for Atheros. "You can use an 'out of band' medium, meaning you configure something manually at each device, without broadcasting signals over the air. You can show users on-screen things you can do to simplify product setup that doesn't allow them to be hacked because only they have access to the physical devices."

Losing support

The same Park Associates survey of 3,370 IT executives shows the more support calls users make, the less likely they are to buy that brand the next time around.

Broadband households with a data network
63%

Users who never called the help desk
66%

Users who made one support call
54%

Users who made two support calls
48%

Users who made three or more support calls
43%

Macnab says the home network industry's next challenge is to simplify the network and security configuration of "headless devices," such as media and music players that don't have LCDs and keyboards, but perhaps only a switch and an LED. "You have to be able to install them securely and easily," he says.

While Macnab won't offer details, he says "Atheros is developing products in this space," and that he wouldn't be surprised if they were available before Christmas. "Don't underestimate what we've already done," he says. Today, Sony sells TVs in Japan that include Atheros 802.11a chipsets.

Along those same lines, Saral Networks, an early-stage start-up, has developed software that automatically configures network and security settings across all products behind the scenes. End users load the software onto a PC, follow some screen prompts, then plug in a unique 16-digit ID home network number into each device on the network. The number runs through various algorithms to generate the necessary SSID, WPA keys for wireless devices, an encryption key for a HomePlug device.

Saral CEO Samrat Vasisht says he thinks Broadcom and Intel's question/answer security configuration scheme "is a paradigm that needs to go away. It not only dumbs down security to a great extent, but it's also limited to devices that have alpha keys. How do you plug a username/password into a microwave oven?"

The length of the 16-digit number makes

Short Takes

■ Called a "significant signpost" for the home network market, **broadband gateway worldwide revenue** increased 5% to $1.17 billion, and units shipped increased 15% in the first quarter of 2004 compared with the fourth quarter of 2003, according to a new report from Infonetics Research. The report predicts revenue for the segment including gateways, modems and routers will grow to $4.8 billion by 2007, with the number of products shipped to increase 141% between 2003 and 2007. The report attributes growth to widespread broadband adoption and decreasing gateway product prices.

■ **Iomega** has announced a wireless network-attached storage device for small and home offices. The Iomega NAS 100d includes Iomega Automatic Backup Software and comes in 160G- and 250G-byte versions. It includes a 10/100M bit/sec Ethernet port, an 802.11g interface and two USB 2.0 ports for additional storage. Available this month, the 160G-byte version costs $500, the 250G-byte $600.

■ **3Com** has announced an 802.11g travel router and print server. For use in hotels, conference rooms and offices, the travel router includes a stateful packet inspection firewall and Wi-Fi Protected Access encryption. The wireless print server connects a USB 2.0 or 1.1 printer to a wireless network. The OfficeConnect Wireless 54M bit/sec 11g Travel Router costs $90; the OfficeConnect Wireless 54M bit/sec 11g Print Server $120.

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Complexity

it secure, and Vasisht envisions users carrying their IDs in a wallet or memorizing their numbers, as some do with credit card numbers. Because users plug the 16-digit number manually into each device, no information is transmitted over the air between secure and unsecure devices, as Atheros' Macnab recommends.

"There's a mindset that the user needs control over the key," Vasisht says. "We think that's not necessary, as long as the network is configured right. Other technologies, like Buffalo Technology's AirStation One-Touch Secure System and Zigbee, require you to hit a key on one device that then shoots the key out to the other device within a predefined time period, 1 or 3 seconds or so. They rely on sending the key over a low-power signal so a snooper can't pick it up. With Zigbee, it might mean somebody messes up my lighting, but with a home network, that's risky. Somebody could break into your financial records," Vasisht says.

Saral plans to license its software to OEMs; you won't get it from the company directly. Vasisht says Saral is in discussions with Intel, which he says is considering adding Saral's software specification to the Digital Living Network Alliance Working Group's Home Networked Device Interoperability Guidelines.

New Jersey start-up SingleClick Systems bets consumers would prefer to buy network utilities from agnostic software vendors than get them from hardware vendors.

"What Linksys is doing is fine, so long as you have the recommended hardware," says co-founder and CEO Scot Zarkiewicz. "Our Windows applications support all the technology and infrastructure; routers to PCs to printers to TiVOs and PlayStations."

SingleClick's Home Net Manager and the upcoming Wireless Network Ignition work with whatever configuration and security features are built into the existing hardware. They provide home network auditing, device-health monitoring, home network auto-diagnosis and repair, a resource-sharing wizard, and network configuration and management.

Like the Linksys tools, Home Net Manager probes network devices and WAN and LAN connections, and determines the cause of a problem. It then recommends how to fix it, or does so automatically.

"When we say you're connected, you actually are," Zarkiewicz says. "We validate you have Internet access. Our tool negotiates the address, and if Windows does it wrong, we tweak Windows to get it right. Home Net Manager reverses a lot of the things XP does to make sure you get a connection."

In beta now, Home Net Manager is set to ship Oct. 14. SingleClick is scheduled to release Wireless Network Ignition in beta this week, with plans to ship it Nov. 1. Each product costs $40 — nearly the price of a new wireless router — although the company likely will bundle the utilities and lower pricing. The products are available at www.singleclicksystems.com/buy.html.

"If people have a network problem and our software fixes it for them, we've saved them two hours on the phone with Linksys, plus an hour with Dell. We think 40 bucks is worth that much time," Zarkiewicz says.

Seattle start-up Pure Networks, which makes the home network software utility Port Magic, last week announced an investment by the Intel Digital Home Fund, Intel's $200 million capital investment fund. The company says it will roll out a full home network utility suite in the coming months. Port Magic, which AOL bundles with Version 9.0 of its software, automatically configures the router to open the necessary ports to allow online gaming and instant messaging traffic. No other details are available. ∎

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Technology

UDO boosts storage capacity

■ BY DAVE DUPONT

Regulatory requirements such as Sarbanes-Oxley and the Health Insurance Portability and Accountability Act, in conjunction with the ever-increasing threat of litigation and the desire to derive maximum value from information assets, are compelling organizations to develop robust archival storage strategies. A new technology called Ultra Density Optical promises the capacity, scalability and longevity that corporations require. UDO drives typically will be installed in optical libraries connected to networks.
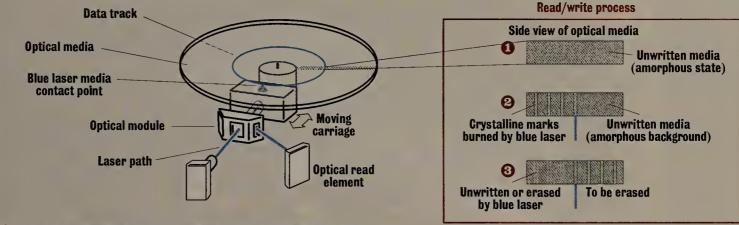
UDO was designed to meet the demands of archival storage applications by offering higher media capacity than traditional optical storage. Capacity of DVD technology maxes out at 9.4G bytes, whereas the first generation of UDO drives and media can store 30G bytes. 60G- and 120G-byte versions are planned.

The limiting factor in optical capacity is the size of the "spot" produced by the recording laser. Traditional optical storage devices, including CD, DVD and magneto optical, utilize red or infrared laser technology. But UDO drives use blue lasers, which feature a shorter wavelength (405 nanometers) than red lasers (780 nanometers for CDs and 650 nanometers in DVDs). The combination of the shorter wavelength and new optics let blue lasers focus on a smaller spot. And more spots in a given area means more data in that area.

UDO drives record data using an 8K-byte sector size to maximize media capacity and performance. In a process known as phase change recording, the drives write data by heating a spot on the media recording layer with a blue laser and changing it

■ HOW IT WORKS

UDO drive

An Ultra Density Optical drive offers greater capacity than traditional optical drives because it uses a blue laser to focus on a smaller spot on the media. The cutaway image depicts the changes the laser produces on a UDO disk.

Read/write process

Data track
Optical media
Blue laser media contact point
Optical module
Laser path
Moving carriage
Optical read element

Side view of optical media
① Unwritten media (amorphous state)
② Crystalline marks burned by blue laser | Unwritten media (amorphous background)
③ Unwritten or erased by blue laser | To be erased

❶ The recording media begins in an amorphous state with molecules arranged in no particular pattern.

❷ A precisely formed blue laser heats up molecules in a small area of the media, causing them to arrange themselves into crystalline structures. To read the data afterwards, a lower-intensity laser beam is passed over

the recording media and the higher reflectivity of the crystalline data marks is picked up by a detector.

❸ On UDO rewritable media, a high-intensity blue laser changes the physical state of the molecules back to an amorphous state.

from a crystalline to an amorphous state, recording a data mark. The same laser, set at a lower intensity, is used to read the media.

Just like other types of optical media, UDO is available in rewritable and write once formats. Because both media types are non-contact, non-magnetic, data recorded on UDO does not degrade with use, is not sensitive to exposure to magnetic fields, and accommodates a wider range of environmental temperature and humidity conditions than do current optical drive technology. In tests, UDO media

was shown to have a life expectancy of more than 50 years when stored in a typical office environment.

The International Organization for Standardization and International Electrotechnical Committee ratified the ISO/IEC 17345 standard for 30G-byte UDO media in December.

Major systems vendors support UDO, and more than 30 independent software vendors offer UDO drives and libraries for a range of applications, including data lifecycle management, direct access archival,

hierarchical storage management and industry-specific uses.

UDO is the only blue laser optical storage technology approved by the ISO and European Computer Manufacturers Association. Together with a standard for volume and file structure, ISO/IEC 17345 provides for full data interchange between UDO optical disk drives.

DuPont is vice president of sales and marketing at Plasmon. He can be reached at dave.dupont@plasmon.com

Ask Dr. Internet By Steve Blass

Your column on FormMail left me scratching my head. Why would anyone recommend this buggy, insecure and poorly written script? Even the author of FormMail, Matt Wright, recommends not using his older scripts, but to use upgraded versions provided by the London Perl Mongers group (details at www.nwfusion.com, DocFinder 3932).

Given the ability to replace the older FormMail script with the newer, more secure TFMail version,

I also would recommend the upgrade. Common Gateway Interface (CGI) programming standards have evolved, and so have the support tools available for handling Web forms with Perl CGI scripts. The nms versions from SourceForge are more secure drop-in replacements for the original scripts found at Wright's script archive and can help reduce the risk of having your site used as an open mail relay or worse. Some of the most important security enhancements are the replacement

of the parameter parsing methods used in the older versions with more robust error checking and character handling that greatly reduce the possibilities of successful code injection attacks and server compromise through malicious Web form input.

Blass is a network architect at Change@Work in Houston. He can be reached at dr.internet@changeatwork.com.

Going at a Klip

We were going to write a big introduction to this column setting the scene for why we are writing about today's topic. It was going to explain the situations in which the following product is useful, what problems it solves and how it addresses corporate needs. Then we thought, what the heck, it's just plain cool, so we dropped the intro. Well, except for this one, which isn't quite the same thing.

So cutting to the chase (something we here in the Gearhead Research Laboratories seem to find difficult to do) and without further ado, wasting no more time, getting down and funky, telling it like it is [Get on with it! – Ed.] ... er, OK, is this week's coolness: KlipFolio.

KlipFolio, published by Serence, is pretty unusual, and we're not sure exactly what to call it. Maybe it is an information tool, or perhaps a tool platform would be better. You also could explain KlipFolio as a Windows 98, ME, NT4, 2000 and XP frame-work that supports custom applications called Klips.

The presentation of KlipFolio is not your standard Windows user interface — whatever that might be these days (the Windows user interface has had more bad, random facial surgery than Michael Jackson).

Klips are presented as panels that the underlying application uses to display its output. The panels can be resized by clicking and dragging a tag on the lower right of each panel. You also can move the panels individually by clicking and dragging on the thin header bar in each panel.

Klips can do pretty much anything you can think of. The system comes with nine Klips, and there are many more on the Serence Web site. Pre-loaded Klips include an RSS or Atom newsfeed reader, a Hotmail in-box monitor, stock tracker, weather forecast and Google news search.

The Klips are managed by right-clicking on their panel, which reveals an options menu, or through the toolbar. The options available through both are the same and are specific to each Klip.

The KlipFolio toolbar is shaped like an L that's been rotated 90 degrees clockwise and divided into regions. Each of these regions has a different function: Switch on and off the ability to access the 'Net; refresh the Klips; open the preferences dialog; launch a Web browser to get online help, minimize the toolbar and all open Klips to the system tray; and exit KlipFolio.

To move the toolbar, you click on the region labeled "KlipFolio" and drag the toolbar. When you do this, all the open Klips also move, which maintains their relative positions to the toolbar. You might think of the toolbar and the Klips as being on a layer and the toolbar being, in effect, a handle on that layer.

An option in the preferences dialog is to have the KlipFolio interface always "on top" (that is, always the uppermost window). This is fine when you have a handful of Klips running, but unless you have a huge display, too many Klips will get in your way.

You also can collapse the toolbar into a small panel rather than the rotated L form. In this mode you can click and drag the top part to relocate the toolbar (and all of the open Klips) or click on the bottom part to get a menu that provides all of the functions of the full toolbar.

While Klips will run cyclically according to how they are programmed, you also can force them to run — "refresh," as KlipFolio calls it. Klips can be hidden, deleted and duplicated.

This duplicated facility is useful with Klips such as the newsfeed reader because the Klip provided reads only one feed. Multiple feeds, therefore, require multiple Klips.

Add to that the ability for the code of any Klip to be updated automatically or on demand from a remote site, combined with an open development system (go to www.nwfusion.com, DocFinder: 3934) based on JavaScript, and you have a really powerful package.

Did we mention that this system is free? Serence makes its money from branded versions (DocFinder: 3935) and custom enterprise implementations (see Doc-Finder: 3936).

So you've got the idea: a number of dynamic mini-applications, each with its own display area, relying on the support of a framework for management and services. So of course, we're going to have to build one ... but you'll have to wait until next week.

Share your thoughts at a clip with gearhead@gibbs.com.

Cool Tools
**Quick takes
on high-tech toys**
By Keith Shaw

Sony pushes Vaio notebooks for business

For a long time, Sony has geared its Vaio brand of desktop and notebook computers toward the consumer market, including the addition of multimedia and other consumer-friendly features. Last week, the company announced a new line of notebooks aimed at business users.

The B-Series notebooks weigh about 5 pounds and include features such as integrated wireless and onboard optical drives. They also will include Sony's Smart Display Sensor, which adjusts the notebook's display resolution to any compatible projector or external display.

Starting at $1,150, the notebooks include features such as Intel Pentium M processors (1.5 GHz up to 2 GHz), 256M bytes of RAM (upgradeable to 1.5G bytes on some models), and 40G-byte hard drives (upgradeable to 100G bytes). Each system will include an Ethernet port, two USB 2.0 ports, Sony's i.Link (IEEE 1394) port and one PC card slot. Configurable systems will be available later through Sony's SMB portal at www.sonystyle.com.

Sony's new B-Series notebooks are aimed at the corporate market.

Tek Panels get HDTV support

One of our favorite products from last year was the Tek Panel wide-screen, all-in-one multimedia computer from Hy-Tek. It combined lots of devices (computer, LCD flat panel monitor, TV, digital video recorder, stereo speakers and DVD player) into one package.

The company recently announced that HDTV support is available on its Tek Panel 370 and Tek Panel 300 systems. The 370 (starts at about $8,500) includes a 3.2-GHz Pentium 4 processor, a 37-inch diagonal TFT LCD monitor, built-in Toshiba DVD-RW/CD-RW drive, onboard digital video recorder, 125-channel TV tuner and Klipsch ProMedia 2.1 speakers. It also has a 120G-byte hard drive, and includes 1G byte of DDR RAM, a Gigabit Ethernet port, firewire port and multiple USB ports.

The Tek Panel 300 (starts at about $6,500) has a 30-inch TFT LCD monitor, a 2.8-GHz Pentium 4 processor, DVD-ROM/CD-RW drive, built-in digital video recorder and TV tuner, and ProMedia 2.1 speakers. The system has 512M bytes of DDR RAM and a 120G-byte hard drive, and includes a Fast Ethernet port, firewire port and multiple USB ports.

The systems are sold through the company's Web site (www.tekpanel.com) or through value-added resellers.

Logitech enhances its cordless keyboard

Speaking of all-in-one systems, Logitech last week launched its Cordless Desktop LX 700, a keyboard and mouse bundle.

Logitech's Cordless Desktop LX 700 keyboard and mouse bundle lets users control programs such as media player software and instant-messaging applications.

The keyboard has additional buttons that let users control programs such as media player software and instant messaging applications. Other buttons let users control volume, play, pause, fast-forward and rewind the media.

The system includes Logitech's MediaLife software, which has an interface that combines music, photos and video on a PC.

The software lets users access playlists, start a slide show or watch video clips without searching for the correct file or player.

The $100 bundle includes the Logitech Cordless Click Plus Rechargeable Optical Mouse, which comes with a recharging stand. The system will be available next month in the U.S., Europe and Asia.

Shaw can be reached at kshaw@nww.com.

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ON TECHNOLOGY
John Dix

As spam evolves, so do the tools

Companies have spam defenses in place that are working for the most part, but with the problem growing worse by the day and evolving along the way it is hard to stay out in front.

That seemed to be the consensus at the launch last week in Atlanta of our technology tour called Strategy and Management for Messaging and Spam (see www.nwfusion.com, DocFinder: 3938). The event was hosted by yours truly and featured keynotes by *Network World* columnist Mark Gibbs and presentations by Akonix, IronPort, MailFrontier, Sophos and SurfControl.

We also convinced attendees to join us on stage to discuss their real-world experiences, which seemed to vary by vertical market.

Jim Farmer, network systems manager with Atlanta- based Superior Essex, the leading manufacturer of telephone wire, says his company gets 7,000 to 8,000 e-mails per day, 70% of which is spam. Farmer says he tried to fend it off using desktop software but none of it worked well. "Then we moved to a gateway appliance, which made a big difference. We're much happier today," he says.

Karl Wiggins, technical services manager at Randall Publishing of Tuscaloosa, Ala., says his company only has 350 e-mail boxes but some weeks gets a million messages, 95% of which are spam. Is he winning the war? "Yes, we're better off than we were before," he says.

But Farmer and Wiggins were at the event because spam represents a moving target.

For example, Marc Borbas, global product manager for Sophos, talked about how the spam and virus worlds are colliding, resulting in viruses that turn victims' machines into spam engines. He says that 30% of spam comes from innocent machines today.

While the industry is making some progress fighting back, Nick Edwards, senior product manager for IronPort, says that Sender ID — backed by Microsoft and others — is useless by itself. IronPort argues you also need to be able to assess the sender's reputation so you can make intelligent decisions about how to handle incoming mail, all of which the company's products address.

Everyone in attendance was in agreement that there is no silver bullet. This is a multifaceted problem that is still spinning up. Akonix was sponsoring the show to remind people that spam will only get worse when spammers turn more attention to instant messaging.

User panel member Jonathan White, senior vice president and IT director at Main Street Bank, is looking at just that. He's doing OK with spam today, he says, and "now we're turning our attention to IM."

— John Dix
Editor in chief
jdix@nww.com

Thinking outside the box

Regarding your editorial "RFI for IP PBX vendor showdown" (www.nwfusion.com, DocFinder: 3927): This is the forward-thinking approach that should be applied to all extending technologies to help separate the wheat from the chaff. There might be more gleaned from understanding the questions the panel vendors pose to challenge the vendor at the dais than there will be from the answers they get. I hope the discussions will be facilitated to accommodate as much of this interaction as possible.

Keith Tubbs
Seattle

Plagued by MyDoom

I appreciate the story "Someone to watch over the 'Net" (DocFinder: 3928). I have been plagued with this MyDoom bugaboo invading my in-box as if it were something being dispatched from my own domain, and have complained loudly to my ISP about it. I also have had problems with someone mirroring my domain. It sounds as if these two issues run hand-in-hand.

Darlene White
Lafayette, Ind.

E-voting ideas

Regarding Dave Kearns' column "Paper trail won't cure e-voting ills" (DocFinder: 3929): If the paper receipt is generated inside the voting booth so that the user can visually verify the vote, then any hacking attempt on the machine would more than likely be discovered and the vote count altered to reflect the inaccuracy of the hack attempt. Even techniques such as the random event method, where only ran-

E-mail letters to jdix@nww.com or send them to John Dix, editor in chief, Network World, 118 Turnpike Road, Southborough, MA 01772. Please include phone number and address for verification.

domly selected votes are altered to the chosen candidate, would be discovered. Once a discrepancy is discovered, an analysis of the software can be made and the vote properly adjusted.

E-voting is the wave of the future, and after that will be Internet-enabled voting. Safeguards can be put into place on both systems to ensure a more accurate vote than the current system.

Ty Simone
Somerset, N.J.

Here's an idea for conducting e-voting: After voting, one reviews the paper ballot, then takes the ballot to the paper-ballot box, which has a scanner mounted on it. The text would be machine-readable, so that a second database can be created and sent to an independent device (said device should have a copy of the submitted, e-ballot database), where the two databases (e-ballot and scanned ballot) are compared.

Is that paranoid? Probably, but it's near-immediate verification of e-voting.

Stephen Wyman
Austin, Texas

In a properly designed paper-trail system, the data-entry system (Windows-based) would return an unofficial count. This system would output a human-readable and optical character recognition-capable paper ballot that would be read by an OCR machine. The Windows system would not need to be certified or controlled; the official count would be based on the OCR machine. If the two counts differed, then an inspection could determine why. Most importantly, the unofficial counts would be on networked/networkable machines, while the official counts could not be; to certify, any unnecessary software, such as the networking stack, would have to be removed.

Steve Friedman
Silver Spring, Md.

More online! www.nwfusion.com Find out what readers are saying about these and other topics. DocFinder: 3926

MARGULIES
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DEMO INSIGHTS
Chris Shipley

The dawn of service-based computing

A year ago in this space, I pronounced the dawn of a new era of computing. With mobile phones selling in the tens of millions, PDAs saturating the market and laptops consistently outselling desktop PCs, I said we'd entered the age of device computing. I was wrong.

Quite frankly, while mobile devices are amazing in their capability and power, they deliver very little value if they aren't connected to some other computer or service. For the most part, these devices are little more than beautifully designed, computationally rich I/O and storage devices. It's not until you add a connection — a radio, Internet relay, cable or docking station — that mobile devices become truly useful and exciting. So to say that we'd entered the age of device computing was to miss the point.

Certainly, we are moving to a new paradigm in computing, and it's easy to see how mobile devices might get all the attention. The device is the end node of a connected system of computing that fundamentally changes the way applications and data are delivered to the point of interaction. I call this system service-based computing.

Service-based computing delivers applications and data from a managed computing platform to a relatively simple end device. In doing so, it puts the onus of managing the computing environment on the service provider and liberates the end user to engage with the information. Service-based computing is the future model for nearly all computing and communications.

DEMOmobile 2004

The market has been building to this model since 1997 with the first ASP application. At Demomobile earlier this month, we saw plenty of evidence that service-based computing is upon us. Companies such as Pepper Computing and Route 1, as examples, take different approaches, but the result is the same: The user gets a complete computing experience without having to endure the hiccups of hardware and stutters of software. These are systems that simply work, and work simply.

The saturation of mobile devices in today's market has changed user expectations, and perhaps this as much as any advancement in the state-of-the-art of technology is driving us inexorably toward the service-based computing model. Even the most tech-savvy folks don't have the time, inclination or patience to wrestle with configurations, endure service gaps or put up with long learning curves.

As service-based computing takes hold, it must fulfill a promise of a simpler, more reliable, even more enjoyable end-user experience. This puts tremendous pressure on the technology industry to deliver fast and stable operating environments, focus development resources on usability, and build coverage and reliability into wired and wireless networks. It also liberates users to focus on information rather than information technology.

Shipley is executive producer of The Demo Conferences, a Network World-owned event that showcases emerging technology products and services, and a veteran technology watcher. She can be reached at chris@demo.com.

These are systems that simply work, and work simply.

ON SECURITY
Winn Schwartau

Make security personal

What is the leading cause of cybercrime? Bad guys. How? They take advantage of Microsoft's security holes. Why? Because they can.

That's what many people believe. However, a significant percentage of cybercrime is actually the fault of the very companies that want to protect themselves. Many companies make timid, awkward and ineffective attempts at teaching their staff about company security policies. This occurs because most corporate security policies are boring, unintelligible tomes. Ergo: No one pays attention to them.

I spend a lot of time helping companies get their security message across to their employees. But I don't know of one employee at any company who cares one iota that "our policy is designed to take maximum advantage of our internal IT skills, protect our operating environment and prosecute offenders to the maximum extent of the law."

Instead, I've found that employees care — and listen — if you educate them about protecting themselves from cyberstalkers, their kids from predators and their families from fraud.

Consider the following, gleaned from a variety of authorities, including Gartner, Forrester Research and the Federal Trade Commission:

• Cybercrime costs the global economy $1.6 trillion annually. Six million children have been solicited online for sex in the past year. Which statistic is more important to working moms and dads?

• The indirect losses to a company from intellectual property theft are 10 times as great as the direct loss itself. Every minute 13.3 people have their identity stolen, each taking up to 600 hours and several years to repair. Which figure is more compelling to office workers?

• Eighty-nine percent of all companies have had their Web site hacked. At any one time, 1 million American women are being cyberstalked. Which statistic gets your attention?

• There are 42 million domains on the Internet. The annual U.S. revenue from pornography ($12 billion) is almost twice as big as the combined revenues of ABC, CBS and NBC ($6.2 billion). Which number makes you think twice?

Should workers care that viruses cost industry $55 billion in 2003 (double the amount in 2002) or that a computer virus/worm/spyware in their home computer can lead to instantaneous identity theft? Should we tell workers that the office is a porn-free zone, or that 2.8 billion pornography spam-mails are sent every day, and 80% of 15- to 17-year-olds have had multiple hard-core exposures? While conscientious workers care about how cybercrime affects their companies, they're more concerned about how it might affect their families

It's not that corporate users are stupid, lazy slugs who don't give a rat's patootie about security policy; it's that the corporations are putting themselves and their financial interests first ("If we get hacked, we'll lose money") and their employees' second ("There are 100,000 kiddie porn sites out there. Here is how to best protect your family."). It's that the typical, straitjacketed approach to security education is dull, uninspired and atavistic at best.

Give your users a chance. Teach them on their terms for once, not yours. Take a lesson from TV and films, and entertain. Most people learn about politics from "The West Wing," and half the people in the country are now legal and forensics experts because of the "Law & Order" and "CSI" franchises. Use the same techniques to teach security. People are open to ideas presented to them through entertainment, and they are especially interested if it directly affects them.

Make security personal. If your staff learns the ins and outs of making their home computers secure and how to protect themselves from the ravages of the Internet, exploiting that knowledge for the benefit of your company's security is much easier and more effective.

Schwartau is president of Interpact, a security awareness consulting firm, and author of several books, including the recent Pearl Harbor Dot Com. *He can be reached at winn@thesecurityawarenesscompany.com.*

Conscientious workers care . . . more about how [cybercrimes] might affect their families.

Is a free meal a good thing?

■ BY MARK EHR

When I worked at Aprisma a few years ago, the company had outsourced its VPN to a service provider to provide access to the corporate network for remote offices and traveling employees.

When Aprisma negotiated a service-level agreement (SLA) with the VPN vendor, it insisted on service-level objectives (SLO) that specified levels of availability and performance. The SLA specified penalties in the form of service rebates for SLA-violations not to exceed the total monthly fee.

After a year, Aprisma's CIO said the company never had to pay the VPN service vendor's monthly fee. The provider failed to achieve the SLOs, resulting in service rebates every month. One would think that Aprisma would have canceled the contract early on with the vendor for non-performance and simply found another company to provide the service, but it did not. Why?

The answer is that the levels of service being provided were actually acceptable. The provider's mistake was in not making sure that it could meet the SLOs, and in forgetting that it was doing business with a network management software vendor that could easily verify the service provider's compliance with the SLA. That brings up an interesting point — service consumers should leverage their investments in management technologies to verify their provider's compliance with the SLAs, as there might be some free service to be had simply by holding their feet to the fire.

I believe many service providers create SLAs without making sure that they are realistic, and many service consumers lack the technical sophistication to validate if the SLOs are being met.

This is an incredibly flawed business model, as no service provider can stay in business long without receiving revenue from its customers. It's like getting a bad meal from a restaurant, and when you complain about it, the manager gives you a coupon for a free meal. Do you really want another meal, free or otherwise, unless there is empirical evidence that they have rectified the problem?

This typifies a real problem in the service provider/service consumer model today: poorly written SLAs based on unachievable SLOs can be disastrous for the vendor, resulting in significant financial losses when adequate levels of service are actually being provided. The reverse also holds true — SLOs that are vague or difficult to measure are not worth the paper they are written on. It is critical to both the service provider and the consumer to ensure that the SLA they agree upon provides a business-relevant level of service to the consumer that can be easily measured and verified by both parties.

Ehr is a research director with Enterprise Management Associates with more than 20 years of experience working with distributed systems, applications and networks. He can be reached at mehr@enterprisemanagement.com

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MESSAGING NEWSLETTER

Spam will never reach more than 100% of e-mail

BY MICHAEL OSTERMAN

In August, 92% of the e-mail processed by the MXlogic Threat Center was spam — in July, it was 84%. MessageLabs reported that spam represented just under 70% of the e-mail it processed in August. As of this writing, FrontBridge reports that 87% of the e-mail it's processing is spam. Postini is currently processing more than 13T bytes of spam each month.

That's the "good" news. The bad news is that spam — both in terms of the percentage of e-mail that it represents and the total volume of messages — continues to increase.

Spam causes clogged network bandwidth, lost productivity, increased storage requirements for mail servers, reduced e-mail server performance and the like. Newer and more dangerous threats include phishing and the use of Trojans and worms to infect home PCs to turn them into spam-sending zombies.

The newest threat appears to be the potential for seriously undermining the effectiveness of the Sender Policy Framework (SPF) authentication scheme because of the rapid adoption of SPF records by spammers, making their e-mail appear to be legitimate. We have found that legislation — at least so far — simply does not work to stop spam. Compliance with the CAN-SPAM Act, for example, is minimal even in good months.

So given all of that, here's my prediction of the future of spam: it will simply disappear for the vast majority of users, albeit not for the networks themselves. In a survey Osterman Research conducted in July, we asked IT people how best to describe the spam problem for their organization. More than 55% of respondents feel that spam is still a problem, but that spam-blocking technology handles the problem adequately.

What makes that result significant is that we asked the question at a time when spam represents about four out of every five e-mail messages that an enterprise user receives. In other words, although the spam problem is worse than it has ever been, most organizations that have implemented a technology-based solution don't feel it too much anymore.

The continued adoption of spam-blocking technology and infrastructure improvements will do two things. First, it will make the spam problem disappear for most organizations — I predict that when we ask the same question in one year, the number of organizations reporting that spam is not much of a problem will increase to at least 75%.

Second, spam blocking will eventually drive most spammers out of business by changing the fundamental economics of spamming — the reduced return from spamming caused by the vast majority of this junk being blocked just won't be worth the effort for many spammers.

Osterman, who is the principal of Osterman Research, can be reached at michael@ostermanresearch.com

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THE BUZZ ISSUE

Our annual sampling of the hot new technologies

Spice it up

I discovered a new acronym today in my travels as a *Network World* editor: ISHSA (not sure on the pronunciation, but I'm going with ish-sa). And no, it doesn't stand for International Standard for Hyper-Speed Access or IP Super Hosted Services Architecture. As good as those guesses might be, you're not even warm.

ISHSA stands for the International Society of Hot Sauce Aficionados, a group "dedicated to the lifelong quest to sample all known hot sauces." This includes your spicy chicken wing and zesty barbecue sauces, your salsas and so on. Truly, there is an acronym for everything.

Which brings us to you, the *Network World* reader. An ISHSA member's lifelong quest to sample all known hot sauces is a lot like a network executive's mission, don't you think? Substitute the words "hot sauces" with "hot new network technologies," and I bet you've just described yourself. And consider this: The ISHSA recognizes "that only a few with vision, fortitude and dedication will attempt to accomplish this worthy goal." Wouldn't you label yourself a like individual in pursuit of your technology passions?

ISHSA's fiery spirit also parallels this year's Buzz Issue, our eighth annual. The group was "founded to provide information, encouragement, community and access to the more difficult to procure hot sauces of the planet." The Buzz Issue's goal is to expose the latest, greatest, hottest technologies.

So dip into these pages for the information you need to spice up your IT operations. Now if you're looking for a little something to punch up your lunch, head to www.hotsauce.org.

🌶 Beth Schultz
Signature Series editor
bschultz@nww.com

More Buzz online:
Head to the Buzz portal at www.nwfusion.com/Buzz/2004 for these special features:

- A quick reference chart containing all of this year's spicy new technologies (DocFinder: 3931).
- More on business services management, including a glossary (DocFinder: 3921) and a tools list (DocFinder: 3922).
- More on next-generation mobile data services, including an at-a-glance comparison chart (DocFinder: 3924) and tips for evaluating service offerings (DocFinder: 3925).
- More on infranets, including the reference architecture (DocFinder: 3923).

THE Signature SERIES

The Buzz Issue is one of six bimonthly supplements providing insights, opinions and information on the biggest trends shaping the networked world. Next up is the Extended Enterprise Issue, coming Nov. 15.

Cover and contents page photography: Aaron Goodman

Security in a world witho

As the perimeter loses ground in the battle for secure networks, some security executives want to do away with perimeter security altogether. But others aren't so sure.

■ BY JOANNE CUMMINGS

Face it,

you've already been de-perimeterized. The question now is, what are you going to do about it?

As organizations have opened their networks to business partners, customers and suppliers, they find that perimeter safeguards such as firewalls are opening as well. Then there's the increasing mobility of so-called internal users, who connect to corporate resources via external wired and wireless links. Organizations still have perimeter firewalls in place, but they're now shot so full of holes that they barely provide any protection at all.

"Our borders are ineffective today. We consider them more as sieves — they keep the lumps out, the script kiddies and denial-of-service attacks, but they're not protecting us against many of the threats we face today," says Paul Simmonds, co-founder of the Jericho Forum, a user group examining the ramifications of de-perimeterized networks (see related story, page 70). Recent threats such as the Sasser and Blaster worms, which just walked right by network perimeter protections and hit internal networks hard, provide proof, says Simmonds, who is director of global information security at ICI, a chemical conglomerate in London.

Other users agree that they are struggling to secure their networks now that their perimeter safeguards provide less protection. The most popular strategy in fighting de-perimeterization is what the security community calls "defense in depth." This is the process of shoring up perimeter defenses by layering on tighter and more numerous internal protections.

"We've realized here that it's no longer enough to focus on your perimeter firewalls or even have [intrusion-detection systems] outside your firewalls," says Adam Hanes, manager of information security at law firm Sonnenschein Nath & Rosenthal in Chicago. "You also need to pull that stuff in toward your assets. We have multiple application-level firewalls at different points, we have multiple IDSs and [intrusion-prevention systems] at different points, we have a vulnerability assessment package that we use on a regular basis, and we have a third-party audit package. We don't just look at the perimeter; we look at the whole network."

Jericho advocates another way: Don't fight de-perimeterization; embrace it.

Once we acknowledge that our perimeters are obsolete, we can spend less time and fewer dollars on them and instead focus on better internal security, Simmonds says. Forward-thinking organizations

that embrace this idea will begin to move Web applications outside the perimeter and closer to the people who use them. The thought is that eventually perimeters will dissolve, saving money and making the business more effective.

"If you don't have a border and you don't need to operate within a DMZ, then you have a lot of business advantages," he says. "You can be quicker to market, you can do things faster, you can do things more effectively with less interference and less hardware. You don't need a security team to analyze it and get back to you in a couple of months. You can be up and running doing e-business theoretically in minutes. That's a huge advantage."

Four phases to de-perimeterization

Organizations will move through four phases in getting to the point where they can do business securely within a fully de-perimeterized environment, Jericho says.

Many organizations are in the first phase, which is "begin moving outside the perimeter." In Phase 1, the organization moves public-facing Web applications outside the corporate perimeter and closer to the people using them. This enables more seamless Internet-based communications with consumers, customers and business partners, while freeing the corporate IT staff from the pressures of securing that data via the perimeter.

In the second phase, "soften the perimeter," organizations drop the pretense of supporting a hardened perimeter and instead focus on providing encrypted transport and authenticated access to internal data. This will happen within most organizations within two years, the forum says.

In the third phase, the perimeter ceases to exist. Organizations within this phase will have moved on to data-level encryption and connection-level authentication, obviating the need for any perimeter at all. Look for these kinds of changes in most companies in the 2006-2007 timeframe.

Phase 4 is boundary-less communications. Jericho underscores that this phase is dependent on a future that employs yet-to-be-determined, global, data-level authentication standards. The group estimates most companies will be able to take advantage of this phase in 2008.

True de-perimeterization goes beyond defense in depth and lies in some form of global data

9 BURNING QUESTIONS TO ASK NETWORK SECURITY VENDORS ABOUT DE-PERIMETERIZATION

- In what ways, and at what levels, do you support encryption? In transit? While stored?

- Which authentication standards, such as 802.1X, do you support?

- How can I use this product to enforce security policies at various levels, network access, individual rights?

- How detailed are the above policy enforcement features?

- How can this product be used to secure access or enforce policies over the extended enterprise?

- Once you know who and what is accessing your network, can you assign them policies based on their individual roles?

- How difficult or easy is it to manage down to the individual level?

- Can policies also be applied to network abstracts like virtual LANs or subnets?

- What technologies or strategies do you offer to keep the network secure while we wait for perimeter-less networking to emerge — and how difficult are they to manage?

ut borders

> "If you don't have a border and you don't need to operate within a DMZ, then you have a lot of business advantages."

Paul Simmonds, director of global information security, ICI, and co-founder of the Jericho Forum

encryption, authentication and identity management, Simmonds says. Such a security architecture would use rights management technology and security policy enforcement tools to make sure users gained access to only the networks, servers and data they were authorized to use.

This would allow seamless business-to-business connectivity without the need for firewalls and IDSs.

"You could get rid of all this deep packet inspection and so on, because the traffic would all be encrypted anyway. And with full identity management, only trusted communications would be allowed," he says.

The trick is to get the vendors to supply solutions that actually support such a scenario, including the ability to do cross-organizational authentication, policy enforcement and federated identity management. "In the end, vendors will need to enable us to have one identity within the organization and, eventually, one identity globally," Simmonds says.

Though such cross-company global authentication is beyond current capabilities, expanded use of federated identity and work by organizations such as the Liberty Alliance eventually will make it possible, he says. The Liberty Alliance is working to build standards for federated identity management and Web services.

Reality check

All that sounds well and good in a perfect world, but most users today are skeptical of removing their perimeter security.

"I don't think you'll ever see the perimeter firewall simply go away," Hanes of Sonnenschein Nath & Rosenthal says. Concepts such as federated identity management are "the Holy Grail, and business just doesn't work that way. You aren't going to tell me that I can't do business with someone because they don't have the right ID. As much as we'd love to get

there, it's not even in the near future," he adds.

Simmonds agrees that right now, most pieces required for his four-phase move to de-perimeterization don't exist. Data-level authentication and cross-organizational federated identity management are blue-sky concepts, he says. That's why Jericho is prodding the vendors to produce concrete, interoperable products and answers.

Until that day, users are forced to rely on point-based and interim solutions that attack pieces of the problem. For example, many organizations are looking at point products that shore up internal security while paving the way to more integrated ID and security policy management. They say they realize the perimeter is shrinking and are focusing on managing security down to the individual level.

For University of Texas Health Sciences Center, a good interim step in shoring up the internal network has been the coupling of Check Point/Zone Labs' Integrity policy enforcement software and personal firewalls on all desktops, says Kevin Granhold, director of server and desktop services for the Houston organization.

Integrity is software that sits on an end user's PC. When the PC logs on to the network, it first gets access only to the Integrity server, which checks to make sure the PC meets the organization's security poli-

MICHAEL WILLIAMS

cies and is up to date on its firewall and anti-virus protections. If it's not up to snuff, it doesn't get access to the network.

"The biggest thing is, it doesn't let my desktops communicate to one another within the same subnet," Granhold explains. "They only communicate to trusted systems so that if one desktop gets infected with a virus or worm, it won't affect all my desktops." This setup also helps protect the network from intruders, he says. The network won't talk to any system that's not trusted, and all trusted systems are under physical security — lock and key — in the server room. "It's all centrally managed, and it works very well," he says.

Others are looking for ways to simplify the move to enterprise-wide — and cross-company — identity management. Financial services firm Certegy in St. Petersburg, Fla., uses new identity-based technology from Trusted Network Technology. Called Identity, this appliance integrates with the company's Microsoft Active Directory to bring authentication and rights management down to the TCP/IP packet level. Identity examines packets, validates

Internet proxy devices. "When the traffic goes through a proxy, the proxy regenerates the packet header to help you hide information about where it came from," Proctor explains. "When it regenerates the packet header, though, it erases the identity. So they need to overcome that somehow in future releases."

Still others are exploring a much stronger interim measure consisting of new policy-based network switches that boast integrated security. Several switch vendors, including Cisco, Alcatel and Enterasys Networks, are touting their switch-based security schemes, including the ability to quarantine viruses, handle authentication and enforce policies.

Eaton Vance, a Boston financial services firm, decided to implement Enterasys' policy-based networking products when it upgraded its infrastructure six months ago.

"Policy-based networking was very important to us because as a financial services firm, with all of the

grated IDS/IPS capability called Dynamic Intrusion Response that can then spot anomalies and react to mitigate malicious traffic.

"It's like an IDS, but it takes it one step further," Cottone says. "Once you identify a port that's behaving in a non-acceptable manner, you can do a variety of things, like automatically do some rate limiting or shut down the ports on certain things. It gives you a nice degree of control and granularity."

This eases the whole business of ID management and authentication within the company, while reducing vulnerabilities, Cottone says. Still, it's an internal-only solution. "How are we going to authenticate our external business partners? That's what we're wrestling with," he says.

He says he's watching organizations such as Jericho in the hopes that they come up with some industry-standard answers.

"De-perimeterization is a big buzzword right now, but I think it does have some merit behind it," Cottone says. "Everybody agrees [securing an extended enterprise] is a problem, but nobody really agrees on the solution yet. Like the Jericho Forum says, standard federated identity management would be nice. But it's nowhere near a reality today, and we have to make do with what we have."

Cummings is a freelance writer in North Andover, Mass. She can be reached at jocummings@comcast.net.

> ## "De-perimeterization is a big buzzword right now, but I think it does have some merit behind it. Everybody agrees [securing an extended enterprise] is a problem, but nobody really agrees on the solution yet."
>
> **Vinny Cottone, vice president and director of infrastructure services, Eaton Vance**

digital signatures and applies security policies before connection. Packets without Identity data, or that fail policy, are discarded. Users are allowed to see only the systems and resources that they are authorized to use.

"The concept is great for ensuring that only authorized people can access corporate data," says Wayne Proctor, Certegy's corporate information security officer. "But it's new technology that is not quite there yet."

For one thing, it's appliance-based, which makes it difficult to scale and manage. Another hurdle is

new regulations out there like Sarbanes-Oxley, compliance is huge," says Vinny Cottone, vice president and director of infrastructure services at the company. "We truly needed the ability to understand what's happening on our network and who's accessing what, because, frankly, no one is trusted anymore."

Eaton Vance's new Matrix N3 and N7 enterprise switches employ what Enterasys calls Secure Networking. Using 802.1X standard authentication, the switches let Cottone define roles to various users and determine what traffic is allowed and not allowed from them. The switches also have an inte-

SNAPSHOT: SECURITY USER GROUP

The Jericho Forum and its goals

The Jericho Forum describes itself as a group of large, multinational user companies dedicated to the development of open standards that "enable secure, boundary-less information flows across firms."

According to co-founder Paul Simmonds, the concept for the forum emerged in 2002. At that time, the U.K.'s Royal Mail got a group of European multinationals together to explore the potential of developing common security architectures. The overall aim was to support de-perimeterized business-to-business networking. The group realized that several corporations were tackling the same challenges of doing business in a de-perimeterized world and they were all clamoring for vendors to address their needs, but they were all "articulating the problem differently."

Realizing strength comes in numbers, the group formed this past January under the Jericho name. Its stated mission is to develop a codified set of

requirements, primarily in the realm of authentication, encryption and identity management and policy enforcement.

The forum has more than 40 members, including BAE Systems, Credit Suisse First Boston, Eli Lilly, Pfizer, Procter & Gamble, Qantas, Reuters, Rolls-Royce and Unilever. It continues to gain momentum and has recently added a number of U.S. and international firms, including Airbus, Boeing and GlaxoSmithKline. It currently is investigating the feasibility of expanding its presence in Japan, France and Germany.

Jericho met in late August to further develop its road map. As a result of that meeting, the group said it plans to publish a draft specification by year-end that will detail vendor requirements for enabling true de-perimeterization.

— Joanne Cummings

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SBC

Doing the desktop waddle

The penguin may have passed Apple's Mac OS to take the No. 2 spot behind Windows on the desktop, but Linux vendors have a long slog ahead.

■ BY PAUL MCNAMARA
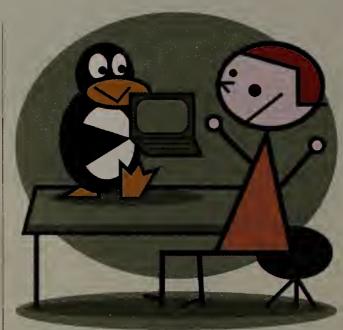
All Linux vendors need to do to break Microsoft's death grip on the desktop is unravel a few chicken-or-the-egg type mysteries.

Which comes first? Widespread demand for Linux operating systems preloaded on PCs, or hardware manufacturers anxious to do the loading? The latter are as scarce as hen's teeth today.

Which comes first? Confidence among would-be converts that Linux application support — for the apps they need most — soon will approach that of Windows? Or a developer community that sees enough demand to make that support happen? Too many developers put all their apps in one basket as things stand.

None of which means desktop Linux isn't creating a buzz — witness the major product development and marketing commitments from IBM, Novell, Sun and Red Hat. The penguin recently waddled past Apple's Mac OS into second place in the desktop operating system market, according to IDC. However, second place means a 3% share, which IDC only sees rising to 6% come 2007. But progress is progress, the Linux advocates say.

Besides, those figures don't paint a true picture, says Bill Weinberg, open source architecture specialist for Open Source Development Labs (OSDL), an industry consortium dedicated to advancing the cause. Market

J.D. KING

surveys account only for commercial desktop Linux and not myriad free downloads and installs, leading some to peg what IDC calls 3% at anywhere from three to 12 times higher. Weinberg says he believes "the truth is somewhere in the middle."

Where the floor is today and where the ceiling may be tomorrow are matters of great debate for those who follow Linux.

The breakout dilemma

"It's unclear to what degree Linux will ever displace Windows so long as it's merely a cheaper but almost as good alternative — which is how it's generally positioned today," says Gordon Haff, a senior analyst at Illuminata. "The breakout would be to deliver a Linux-based desktop system that was compellingly better than Windows in function, look and feel, or some other dimension." However, Haff adds, such a breakout advancement also could prove a challenge for Linux vendors because it would entail new training.

Linux desktop adoption really should be viewed as an outgrowth of Linux in the data center, Weinberg says.

"For the corporate information worker, technical workstation, financial transaction terminals, data entry — anywhere the scope of activity is well

understood and where installation and support are backed by IT staff — that's a very good place" for desktop Linux, he says. "Our members who have adopted Linux in the data center are moving in that direction."

They're moving with good reason, says Jeremy White, founder of the Linux Desktop Consortium and CEO of Codeweavers, maker of the CrossOver Office program that lets users run applications such as Microsoft Office and Lotus Notes on Linux. Desktop Linux has made great strides from a technological standpoint, he says.

"There are challenges, there are warts — pretty serious challenges and warts — but technologically both the Gnome and KDE [user interfaces] are pretty comfortable. You can install them pretty reliably on a laptop now," White says. Besides the "cheaper/just as good" deployment issue, he spotlights limited applications support as one of desktop Linux's more serious challenges.

"There are some great applications for Linux — the Mozilla suite, the Firefox browser is fantastic, there are great e-mail clients. . . . But the real issue is that you can't get the apps you want or the apps that you're familiar with. That's a nasty Catch-22," he says.

No apps, no go

Pete Collins, CIO for the city of Austin, Texas, has found that to be the case. With the dual motivations of a major municipal budget shortfall and utter displeasure with his Microsoft software support contract that expires the end of this year, Collins has pilot-tested the OpenOffice productivity suite. As much as he liked the suite, he says he cannot see a full-scale migration to Linux.

"There are some places that we may be able to utilize it, but not across the board," Collins says of the city's 5,200 Windows seats. "Until developers will support applications in the Linux world, we can't go to the next level."

Windows-based public safety applications pose an obstacle for any move to Linux on the desktop, Collins says.

The story is similar at Young Electric Sign Company (YESCO) in Salt Lake City. YESCO uses a lot of Linux: for e-mail, DNS, network bandwidth monitoring, intrusion detection, syslog servers and

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BURNING QUESTIONS TO ASK DESKTOP LINUX VENDORS

🌶 What apps do you support with your Linux distribution?

🌶 What type of support services do you offer? (The vendor's support staff can be a critical lifeline as your own staff adjusts to the change.)

🌶 What fees are associated with the software?

🌶 What cost savings can I anticipate — and will those be long term or short-lived?

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Linux

more, says Bret Anderson, IT manager at the company. He and two systems administrators even use it on their own desktops.

But as for wider desktop use? "We have considered deploying Linux to some desktops, but we could never get executive management support to offset the gripes we would encounter from users," Anderson says. "There was no way that we were going to try it on any of our design or engineering users; they are all pretty savvy Windows users, and they would make a huge stink about the change."

Besides, Windows is easier to use, Anderson says. "Red Hat has come a long way, but, it needs to go further," he says. "I had to find software so that I could view .wmv and .avi files, and some of the codecs don't work correctly; .tif files don't view correctly. It's not exactly easy to load plugins into Mozilla. SuSE didn't like the hard drive controller on my motherboard, so I couldn't even get it installed. The list goes on and on."

For other users, breaking the Windows dependency is worth the extra effort desktop Linux might entail. Such is the case at Center Automotive in Sherman Oaks, Calif., where IS manager Kent Freeman runs a mix of Red Hat 9 and Fedora Core 1 and 2 on a few IT desktops with a willingness — though no firm timetable — to deploy Linux on all 150 of his desktops.

"We are looking to see if Linux on the desktop will allow us to move away from our dependency on

> "There was no way that we were going to try it on any of our design or engineering users; they are all pretty savvy Windows users, and they would make a huge stink about the change."
>
> **Bret Anderson, IT manager with Young Electric Sign Company, speaking of the company's limited use of desktop Linux**

Microsoft," Freeman says. "The expense, vendor lock-in, product licensing, application and [operating system] security issues, patch management and general system resource misuse/abuse are all a huge drain on our budget and resources."

Freeman calls the Linux desktop systems he has seen stable, fast and reliable, while also crediting them with saving time because patches can be applied without rebooting.

"In contrast, if we have 150 Windows systems that require a patch, and a single patch reboot takes 2 to 3 minutes, that equals 300 to 450 minutes of lost end-user productivity," he says. "If there is more than one patch, well, you get the idea. This inefficiency is a real-world problem that Microsoft has failed to address."

The money myth

Interestingly, though, a number of IT consultancy reports issued over the past year have argued that long-term considerations, in particular applications support and training, will offset any initial savings that might be gained from Linux rather than Windows. The Linux evangelists give little ground on the point, however. "I absolutely think there is ROI, but I don't think your payoff is in Year One," says White of the Linux Desktop Consortium. "Your time to ROI is a three- or four-year horizon."

White's counterpart at the OSDL insists that Linux on the desktop passes the ROI test where it counts

Desktop Linux key ingredients

Before you venture into an open source operating system for your desktops, be sure you've got the following:

- A detailed survey that provides a clear understanding of which end users can and cannot be migrated to Linux.
- On-staff Linux expertise or access to that expertise, which isn't always readily available in every part of the country.
- Top-level executive buy-in as users who are hooked on Windows inevitably will complain.

most: in real-world deployments.

"We don't have definitive data, but we know that our members' customers are not choosing Linux because it's more expensive or because they have an emotional or ideological commitment to it," Weinberg says. "They are finding that the [total cost of ownership] is better over the owned lifetime of the device. Because Linux doesn't require constant, aggressive upgrades to hardware, the deployed lifetime of your Linux workstation is longer so you have a better chance of amortizing the costs."

Still, the bottom line is that few see anything but a marathon sales job ahead for desktop Linux.

"It's just a long, hard slog," White says. "I think what everyone is looking for is sexy, sudden, magical, transformative spike, and I think this instead is what we do: We stay in the trenches and keep fighting." ■

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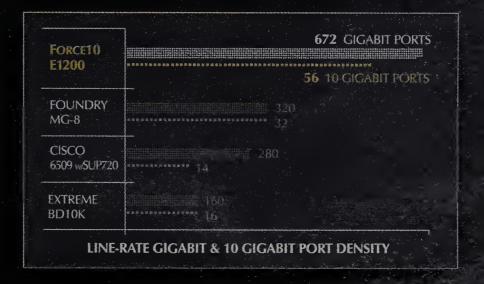
Where to find desktop Linux software

Cost is only one of the variables to investigate when considering a move to desktop Linux.

Vendor	Product	Description	Cost	Applications supported
Lycoris	Desktop/LX	Version 1.4 loads ready for 'Net access, productivity apps and multimedia.	$40 to $80	Includes KOffice Digikam, GIMP, Acrobat Reader, Mozilla, integration with Win4Lin Workstation 5.0, CrossOver Office 3.x and Cedega 4.x.
Novell	Novell Linux Desktop	Gnome-based, integrates with Novell's GroupWise server for e-mail, calendars, contact lists and instant messaging.	Product expected in this fall, price unannounced.	Gnome, KDE productivity apps expected to be supported, along with other open source apps such as Mozilla; also CrossOver Office.
Red Hat	Red Hat Desktop	Focused on enterprise and commercial markets, blends Gnome and KDE features.	Sold as part of Red Hat Enterprise, single seat from $179.	Gnome, Mozilla, Evolution, OpenOffice.Org, Bluecurve and other open source software.
Sun	Sun Java Desktop System	Based on SuSE Enterprise Linux; targets enterprise and home users.	$25 per user for corporations, $50 individual.	Sun's commercial version of OpenOffice.org, StarOffice, Adobe Acrobat Reader, Macromedia Flash.
Xandros	Xandros Desktop OS	Features four-click install and automatic disk partitioning.	Open circulation edition free, standard version starts at $39.	All Linux apps including OpenOffice.org, Mozilla, plus number of Windows apps in Deluxe and Business Editions.

The new wireless

While

users enjoy the boom in wireless access, IT managers still are looking for more out of their wireless infrastructures. Distance and speed limitations of wireless LANs make planning for comprehensive campus-wide or metropolitan-area deployments very challenging. And the piecemeal costs of wireless hot-spot access create billing and budgeting nightmares.

Two new initiatives — the IEEE's 802.16 Wi-Max standard and the carriers' Evolution Data Optimized (EV-DO) networks — aim to alleviate these woes. With Wi-Max, enterprise IT managers will be able to build campus-wide wireless networks with transfer rates as high as 70M bit/sec. EV-DO, on the other hand, offers mobile workers with laptops and other devices high-speed wireless service with data rates

Two of the latest plans for wireless data — the IEEE's Wi-Max and cellular's EV-DO — promise high speed and ubiquitous access, but users remain wary.

■ BY SANDRA GITTLEN

of 300K to 500K bit/sec. The approaches vary, but the goals are the same: ubiquitous and easy-to-manage wireless access.

Taking wireless to the Max

The initial deployments of Wi-Max, due later this year, will follow the IEEE 802.16d standard, which specifies connections based on fixed-antennae locations. (A mobile version will follow late next year.) The estimated cost of fixed deployments will be about $500 for a base station and card.

While Wi-Max outpaces Wi-Fi with its impressive data-transfer speed, its real attraction is in coverage distance. High-speed Wi-Max networks with line of sight to an antenna reportedly can stretch 30 miles; without line of sight, the distance shrinks to 5 to 10 miles. Either way, this is far beyond the thousands of square feet that Wi-Fi networks offer.

"Wi-Max is the fit between small wireless and big wireless, between Wi-Fi and 3G," says Bruce Fleming, divisional tech-

> "Right now, I've got accounts with Wayport, T-Mobile, you name it. I'm hoping for consolidation — no different accounts, no different billing."
>
> Jim Linn, IT director, American Gas Association

nology officer for Verizon Federal Network Systems.

Wi-Max, which operates in the 2-GHz to 11-GHz range, has widespread backing. Supporters include Intel, which says it will debut its Wi-Max-enabled silicon later this year, and gear makers such as Alvarion, Aperto Networks, Proxim and Redline Communications. These vendors

all have announced 802.16 equipment plans. On the carrier side, Verizon will start piloting Wi-Max by year-end. Fleming says he expects a rapid ramp-up into mid-2005.

Wi-Max proponents pitch the standard as everything from a way to create on-the-fly networks rapidly in hard-to-wire rural areas to a competitor for costly last-mile service.

Allen Gwinn, senior IT director at Southern Methodist University in Dallas, says he is hopeful but skeptical. He has been tracking closely the progress of the Wi-Max Forum, the industry body responsible for certifying product interoperability. "Right now, this is all pie in the sky," he says. "We don't know what this technology is. We're operating off of big 'ifs.'"

Gwinn says if all goes well, he will employ Wi-Max as a replacement for his last-mile connectivity. "If you ask people what their goal would be for Wi-Max and they were being honest with you, they'd say to get rid of Ma Bell," he says. "That's the most costly and challenging part of access."

At SMU, Gwinn supports 18,000 students, faculty and staff on and off campus. "Anywhere I can save the cost of digging up the street and sticking fiber in the ground, that's going to save money. And places where I've put copper in the ground — if I could replace that with Wi-Max, I could see speed increases," he says.

Bob Newman, vice president of datacom services at Web design firm AdPlex-Rhodes, says he also hopes the Wi-Max buzz is more than just hype. He's looking to Wi-Max to address what he sees as a gap in service provider offerings — true redundancy and disaster recovery for his production facilities in Houston. Because AdPlex-Rhodes manages digital assets for major Web sites such as NASCAR.com and American Airlines.com, "we can't have the system go down," Newman says. He'd like to implement the standard as backup for his T-1 network that is vulnerable to damage by a backhoe.

Today's back-up solutions are not practical, Newman says. "We can run lines into different sides of the buildings, but there are infrastructure costs — such as conduit placement — and ongoing service costs." And those lines are still subject to backhoes

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Wireless

or other mishaps, he adds. "Wireless is the only true redundancy," he says.

With the high and unpredictable cost of T-1 lines, and cable and DSL connections difficult to come by in some markets, industry experts are predicting that wireless as a back-up and local access option will gain momentum.

"IT managers want to deal with at most two service providers. However, many are dealing with 10 to 15 service providers. Wi-Max deployments would allow them to resolve this headache," notes Robin Gareiss, chief research officer at Nemertes Research. Service providers and equipment vendors would be foolish not to look at technologies such as Wi-Max as a replacement for local loop access, she adds.

EV-DO to the masses

Evolution Data Optimized (EV-DO), too, is a no-brainer for the cellular carriers, says Clint McClellan, senior director of strategic marketing at Qualcomm, which provides EV-DO chipsets. "Sprint and Verizon have spent years spreading out their voice networks. With EV-DO, all they have to do is add a channel card to their cell site base stations and they can offer data-optimized services. It's very cost-effective for them," he says.

That has Verizon also immersed in EV-DO trials for high-speed access. Getting a head start on rival Sprint, the carrier rolled out the 3G-class service in Las Vegas, San Diego and Washington, D.C., this year

9 BURNING QUESTIONS TO ASK MOBILE DATA SERVICE PROVIDERS

On EV-DO:

- How can I supplement my existing cell service with support for EV-DO? How much will that cost?
- Where do you provide coverage, and what are your projected build-out plans?
- What average throughput speeds can I expect, and will you guarantee those in writing?
- Are you offering incentives for early contractual commitments?

On Wi-Max:

- How much can I expect to pay for a base station and card?
- Will you assist with a site survey to help determine antenna placement, or do you provide tools for such?
- With line of sight, how much distance coverage can I expect? And without line of sight?
- How do you handle channel parsing?
- Do you plan on supporting mobile Wi-Max as well and, if so, when?

and says it soon will announce more cities. Sprint plans to have EV-DO service available in major metropolitan markets by mid-2005, says Peter Cannistra, director of high-speed wireless data at Sprint.

Jim Linn, IT director at American Gas Association (AGA) in Washington, D.C., says he hopes EV-DO can address his most pressing needs in supporting wireless users — ubiquitous coverage and streamlined billing. All a user needs for EV-DO is a PC air card, which costs between $150 and $300.

"Right now, I've got accounts with Wayport, T-Mobile, you name it," he says. "I'm hoping for consolidation — no different accounts, no different billing."

Linn says he's stuck in a mire of decentralized mobile access. Users log on to hot spots wherever they are — hotels, airports, coffee shops, etc. — creating piecemeal bills for access that are impossible to manage. "My budget doesn't cover any of that," he says.

Linn supports a mobile workforce that spreads to urban and rural areas. AGA members are sometimes in small towns with little to no network access.

"In places with limited connectivity, phone lines can be expensive," he says.

His users are mostly sending and receiving e-mails, accessing presentations or file sharing, so he doesn't need to waste his time on high-end application support.

He says he hopes that the advent of EV-DO, which touts expansive coverage areas, will help gain some efficiencies. He aims to buy

one corporate package that allows universal access to wireless broadband services.

However, Linn hasn't jumped into any of the pilot programs being offered in his area. "My preference is to wait and see that it's working," he says. "Carriers are making a lot of promises that would be hard to follow up on, and I'd hate to be disappointed. I tend to be optimistic, but I don't want to build up the hopes of end users."

Like Linn, Craig Mathias, principal at Farpoint Group, says, "EV-DO is for people who would normally be doing dial-up or people who have broadband in the office and now want it on the road," he says.

While overall he's enthusiastic about EV-DO's promise, Mathias is realistic about some of the hype. "We're not going to come close to reaching the data rates being touted," he says. (For example, Qualcomm's McClellan cites peak rates of 2.4M bit/sec.) "Those are burst rates. There is overall data latency, cellular network latency and your network latency."

Also, IT managers need to keep the access simple, Mathias notes. Don't try offering access to complex applications such as databases or custom programs, he says.

Wayne Hoffman, chief technologist at systems integrator Ponvia Technology in Chicago, agrees — high-speed wireless isn't for everyone, he says. "It may work great for the salesforce in primarily metro areas, but not for a serviceforce that requires a complex application," he says. "We don't have ubiquity in coverage yet, so the decision is going to be application-specific."

But the potential productivity promises of high-speed wireless are indisputable, Hoffman adds. Think of how much more work people can get done if they "don't have to come into the office to sync, if they don't have to spend 10 minutes in the morning on dial-up lines syncing in a hotel room, if they don't have to search around for a connection," he says. "Eventually, data transfers will be pervasive — packets will be transferred from wherever, whenever."

Gittlen, formerly Network World's events editor, is a freelance writer in Northboro, Mass. She can be reached at sgittlen@charter.net.

What else is out there?

Wi-Max and EV-DO are just two high-speed wireless services that service providers and gear makers are touting. Here are others in the works:

Universal Mobile Telecommunications System (UMTS)
Providers: AT&T Wireless and Cingular
Description: Also known as WCDMA, this wireless broadband service offers 3G speeds of 220K to 320K bit/sec. However, providers have announced they will upgrade to the High-Speed Downlink Packet Access Network, which will boost those speeds to 14.4M bit/sec.
Availability: Launched in July in Detroit, Phoenix, San Francisco and Seattle, the service is available with a $300 handset or a $150 modem. Rollouts are expected by year-end in San Diego and Dallas. Nextel Wireless Broadband is based on Fast Low-latency Access with Seamless Handoff.

Orthogonal Frequency Division Multiplexing (Flash OFDM)
Providers: Nextel and Flarion Technologies
Description: Nextel earlier this year announced a partnership with Flarion Technologies to offer wireless broadband service. Touting average downlink speeds of 1.5M bit/sec and burst rates of 3M bit/sec, the service is targeted at the cable and DSL markets.
Availability: This Nextel service is available to customers in Raleigh-Durham, N.C. The company says its partners Cisco, IBM and Nortel are using the high-speed network in that area. Nextel has not announced an expansion of the offering and acknowledges it is testing other approaches to high-speed wireless.

— Sandra **Gittlen**

What the heck's an inFRAnet?

Service providers view these next-generation business-class IP networks as a means to re-create themselves. This time, are corporations ready? ■ BY BETH SCHULTZ

If carriers were to create a business-class public IP infrastructure with guaranteed QoS, reliability and security, would corporations willingly pay to run their most demanding applications on top of it?

A recently formed industry group is betting on it. More than two-dozen vendors and service providers have banded together to create such a public IP infrastructure, dubbed infranet. The Infranet Initiative group includes global service providers such as AOL, British Telecom, Deutsche Telekom, France Telecom, Level 3 Communications and Qwest; network gear vendors Ericsson, Juniper, Lucent and Polycom; and application and computing companies HP, IBM and Oracle. Enterprise organizations are noticeably absent from the roster.

The Infranet Initiative is Juniper's brainchild — a way for the company to help its customers, "rudderless" carriers, find direction, says Pradeep Sindhu, Juniper CTO. Juniper realized it would need to get carriers on a new course, one that took them away from their long-practiced "one application/one network" way of doing business "that's too costly and complex to persist for the long term," he says.

The ubiquitous, cost-effective Internet, on the other hand, provides the right, scalable foundation, Sindhu says. But for carriers looking to expand their premium service offerings, the Internet is too limiting in the types of applications it can support. It lacks the stringent QoS, reliability and security mechanisms needed for premium business services, he adds.

Applications that could benefit from the infranet approach include enterprise-wide VoIP requiring handoffs from one carrier's network to another's, inter-company peer-to-peer collaboration, utility computing and multi-provider VPNs, say members of the Infranet Initiative's leadership council (IIC).

A multi-provider VPN service would be ideal for a business traveler whose office is his PC, says Marco Limena, vice president of HP's Network and Service Provider Solutions unit and IIC member. No matter whether the traveler lands in Asia, Europe or Latin America, he would use the same procedures to access an IP network and would receive the same connectivity speeds, connection quality and security worldwide, he says.

With an infranet, a company would be able to contract for that consistent multi-carrier VPN service. Using specifications under development by Infranet Initiative members, carriers would be able to hand off calls seamlessly among themselves while a corpora-

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BURNING QUESTIONS TO ASK YOUR SERVICE PROVIDER ABOUT INFRANETS

🌶 Do you support the Infranet Initiative?

🌶 What is the status of MPLS technology within your backbone?

🌶 What MPLS services do you offer?

🌶 Does the provider of your MPLS gear belong to the Infranet Initiative group?

🌶 Do you interconnect your MPLS backbone with another carrier's MPLS network?

🌶 Can I run multiple applications at different priorities — with different QoS parameters associated with each priority — across the same MPLS connection?

tion would receive one bill and the user gets the same service characteristics — availability, cost, QoS — from anywhere he lands, Limena says.

Industry déjà vu

If this goal sounds familiar, it is. In the late 1990s, ISPs drummed up the concept of business-class Internet upon which they could offer premium services.

That effort failed for a few reasons, the IIC says. One was timing. "Some businesses still viewed the Internet

as a fad that would fade with the bursting bubble, plus the Internet wasn't yet the source of viral disease and hacking that it is today. So the problem being solved wasn't as acute as it is now nor were the applications that could use it as prevalent or important," a council member says.

What's more, underlying standards — mainly IPv6 — were not sufficient enough to make the promise of a business-class Internet a reality. That's still a problem today — hence the Infranet Initiative. "The driving need is largely the same and growing each year," the IIC says.

In the early 1990s, telecom carriers also tried to parlay their packet-based infrastructures into business-class, revenue-generating platforms for virtual services. Back then, carriers viewed frame relay and ATM as the be-all and end-all infrastructure technologies. They heralded ATM for its advanced QoS features.

But frame relay and ATM were stymied by their connection-oriented natures, says Christine Heckart, vice president of marketing with Juniper. Infranets have the big advantage of relying on routed Multi-protocol Label Switching (MPLS) backbones, she says. With MPLS, IP traffic can be steered over a variety of routes to enable a particular class of service or guaranteed service level. By now, most mainstay carriers have committed to MPLS on their backbones and are ready to capitalize on their new mesh architectures and subsequent routing flexibility.

The MPLS backbone

Heckart points to start-up carrier and working group member Masergy Communications as already providing infranet-type services on an MPLS backbone. Masergy's inControl IP services let a corporation run multiple applications at different priorities — with different QoS parameters associated with each priority — across the same connection.

If Masergy's success is any indication, the Infranet Initiative is definitely on to something. Since launching in 2000, Masergy has amassed more than 200 enterprise customers in 30 countries, the company says. Among them are Fluor, Genesis Microchip, GMAC Commercial Mortgage, Hallmark Channel, LifeCare Hospitals, Tampa Armature Works and The Weather Channel.

At Tampa Armature, voice over the infranet-style MPLS backbone is proving far more reliable than voice over frame relay, says John Sarmanian, MIS manager at the Florida electrical repair and manufactur-

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Infranet

ing company. The company converged voice onto its frame relay network about three years ago to save on long-distance charges, but suffered a nightmare of infrastructure problems as a result. Despite carrier assurances to the contrary, the 256K bit/sec circuits didn't provide enough bandwidth for voice and data, and its routers weren't capable of supporting necessary QoS mechanisms, he says.

"So we took the site I had the most trouble with and put in a Masergy circuit for a two-month trial. All the problems we had been experiencing with voice over frame relay went away," Sarmanian says.

Tampa Armature now runs voice and data between its headquarters and 10 remote locations. It has a centralized T-1 for Internet access and 3M bit/sec pipes for the converged traffic, but pays less monthly than it did for the 256K bit/sec circuits. "We've been very satisfied with the QoS for voice. We've been getting 100% packet delivery with less than 10 millisec of jitter — and the Masergy network has never been the source of a problem," Sarmanian says.

This infranet-style service has been so flawless that Sarmanian has begun adding video into the mix to reduce travel for in-person meetings. And he's renewed his service contract for two years — even though the previous paperwork had not expired.

An infranet-style MPLS service has proven valuable for Vienna, Austria, oil company OMV, says Ulf Busch, CIO. Busch contracts with T-Systems International, the Deutsche Telekom unit serving enterprise customers in the U.S. and elsewhere, for the carrier's IntraSelect MPLS IP VPN service.

Application performance has improved across the board over the company's previous Layer 2/3 network, Busch says. Response times are lower for the company's SAP application, voice quality has increased, intranet access speed is faster, and Internet access has been centralized, he says. Busch says he'd evaluate full-fledged infranet services as the need arises. Such a service would use IIC-developed and IIC-sanctioned open standards for accessing the infranet service and carrying traffic from one network to another while delivering the same level of quality and security to corporations, all on one bill.

In theory, carriers such as Masergy and T-Systems could link their MPLS networks today to provide infranet-type services across their networks. This was the goal of the now-defunct CoreExpress and a few other start-ups that launched early this decade with the promise of offering service-level agreements that extended across multiple ISP networks. But the reality is that achieving such partnership has proved prohibitively costly and cumbersome, says Jody Craft, executive vice president of T-Systems. If the Infranet Initiative accomplishes its goals, that problem would disappear. "With all of the triage stuff — billing, security, etc. — pre-defined and sup-

Who's who in the Infranet Initiative group

More than two dozen service providers and vendors are working to create an alternative public IP infrastructure.

Membership in the Infranet Initiative group is split into the Infranet Initiative Council and working groups. The IIC consists of top executives at global vendors and service providers who "have the seniority within their respective companies to set policy and direction, including the ability to exert influence over participation in standards bodies," states the IIC. As of mid-September, companies represented on the IIC are: AOL, British Telecom, China Unicom, Deutsche Telekom, Ericsson, France Telecom, HP, Huawei Technologies, IBM, Juniper, KT of Korea, Level 3 Communications, Lucent, Oracle, Orange, Polycom, Qwest, Siemens, Telenor and Telus.

Vendors and service providers represented at the working group level are: Airespace, Bezeq, Masergy Communications, NetScaler, Nextone Communications and Ulticom.

The member roster is an impressive start for a group that's barely a year old, says Mark Bieberich, an analyst with The Yankee Group. Still, he and other analysts note the absence of companies such as AT&T, SBC and Verizon on the telecom side; Alcatel and Cisco on the network gear side; and Sun among IT companies.

The group says it continues to pursue these and other members for participation, noting that it in "in the process" of adding seven new members across the various industry segments.

— Beth Schultz

ported by vendors, we could reduce the time it takes for an interconnection from two years to two months," Craft says.

Web services for intelligence

Just as MPLS will make the infranet, so too will Web services. "The selection of Web services as an element in a new IP architecture is critical because Web services is explicitly a tool for integrating computer intelligence into networks," says Thomas Nolle, president of consultancy CIMI, in an infranet white paper called "Infranets: Fulfilling IP's Promise."

The IIC hopes infranets will provide the global infrastructure necessary to support on-demand computing and applications that take advantage of grids (and hence the reason HP, IBM and Oracle participate), Juniper's Heckart says. The IIC intends to rely on Web services standards for signaling and security, for example. It will use Simple Object Access Protocol, the XML-based scheme for allowing networked computers to talk to each other as part of a Web service; and WS-Security for securing SOAP communications, says Kevin Dillon, director of strategic development at Juniper.

"The edge of an infranet is a 'trust barrier' where users are admitted based on their validated identity and right to claim service access," Nolle says in the white paper. This separates the management of a network as a community from the manage-

ment of a network as a connection/transport resource, and this division of functionality has major impacts on the nature of services in an infranet."

So for that multi-provider VPN scenario, instead of creating a VPN for each customer or service type, an infranet creates a network partition that would let carriers divide traffic according to QoS and security requirements. Carriers can put multiple customers and services on one partition if the requirements are the same and trust has been established, Nolle explains.

For application and content services, a server would be admitted to the infranet as network member. Or, it would be admitted as a provider of Web services whose applications are published in service registry and made available to network users.

"This means that infranets can accommodate both the legacy model of distributed computing and the new service-oriented architecture of Web services," Nolle says in the white paper. He suggests that, because the infranet architecture will provide service interworking, legacy frame relay and ATM services could be joined in an infranet with an IP services offering Web services applications.

The use cases

The IIC spells out the service interworking and other technical aspects in a three-level reference architecture. The IIC intends to incorporate standards work already accomplished within the IETF and International Telcommunication Union where possible, it says.

The IIC plans on proving the validity of this architecture by mapping a half-dozen or so use cases against it. In progress are multi-provider corporate VPN service, including performance assurances; software distribution and maintenance; Web radio; and fixed/mobile convergence. Other use cases the IIC have discussed include multi-provider Session Initiation Protocol voice calls; per-session billing arrangements; peer-to-peer collaboration between corporations; and multimedia home gateway/home network. All these applications are among those that the IIC says cannot be handled adequately by today's public IP services.

The IIC would like to move the use cases into pilot tests within six to 12 months, Dillon says. Its endeavors should prove worthwhile, industry analysts say.

"This is an important development for the industry, because prior to the Infranet Initiative there really was no managed effort to bring about some of these changes in the public Internet," says Mark Bieberich, an analyst with The Yankee Group.

Even for carriers with long histories of turf wars and proprietary mindsets, the collaborative approach of the Infranet Initiative is a welcome change. "The standardization efforts for the infranet right now are all about how technically we can do such services. Nobody's ever taken this service-creation approach before," T-Systems' Craft says.

And as HP's Limena says, "Shame on us if we aren't successful. This is an opportunity to differentiate from the public Internet's best-effort approach with a new architecture that offers the highest-level, premium user experience." ∎

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Business services management:
IT's higher calling

This latest management scheme promises to prove IT's value by linking business and technical information in a logical whole. Can BSM live up to its billing?

■ BY DENISE DUBIE

For many network executives, downtime is as dreaded as an Internal Revenue Service audit. They don't know how much damage will be done, how much it will cost or how much trouble they will be in when it's over. They just know to avoid it at all costs.

When the dreaded downtime does occur, IT shops often stray from established processes in their rush to get systems back up and running. They perform ad hoc fixes and, perhaps, focus on problems that could wait while leaving more pressing issues unattended. The latest network management buzz surrounds a new strategy for alleviating this madness.

The strategy, dubbed business services management (BSM), has given rise to the next generation of management tools. BSM tools are aimed at helping network executives prioritize IT projects and address their fixes based on policies that align IT with business goals, processes and services. With their management products already collecting volumes of data on network, system and application health and performance, vendors propose the next step is correlating network health with business performance. And that's the pitch for BSM.

This is software that lets IT executives tell their management software tools which IT applications, services and processes are the most important to the business. The software then, in theory, helps IT staff monitor and protect those business processes no matter where in the data center or extended enterprise those processes reside. Should an outage occur, BSM would help IT folks quickly restore the most critical systems first. Should performance issues threaten an important business system, BSM not only would alert IT folks, but would offer suggestions on how to fix the IT problem to meet business goals.

BSM can improve the performance of important IT systems, too, while being flexible enough to let network executives realign IT systems with business-oriented goals at any given time, proponents say. This differs from its predecessor, business impact management (BIM). BIM could react at the time of a performance problem or network failure to identify the affected applications, end users and customers. BSM, in contrast, is proactive. For example, BSM would alert IT staff to an over-utilized server, based on stored usage patterns, before a performance slowdown. It would allocate more server resources to support the applications, end users and customers before any performance issues occur. It also would provide the data that staff members need to better equip the network to keep business services up and running.

BSM means combining business and technical information into a logical whole that proves the value of IT, says Benoit Thibaut, head of the instrumentation team at DSIO Auchan, a supermarket chain in Lille, France.

"BSM is a way to understand how technology can impact our business. By this, we mean we link our actual system and application management to business considerations," Thibaut says. "[BSM] enhances the way information is displayed, the way the events are correlated and how they are filtered in order to present the events in a business focus."

What it takes

BSM software typically resides on a dedicated server. Network managers use it to identify business processes, model services and set policies based on business needs. After a network executive works with business managers to determine which business services are most critical, the network executive would model those business services in the software. That model would help identify the network, server, storage, database and application elements on which the service relies.

The software could use distributed agents to collect data from managed devices or poll systems using

> "Every business looks at performance a bit differently, and every IT department prioritizes differently. The challenge is in how to calculate what's critical and then get IT to work with that."
>
> **Mark Bradley, senior application development analyst, Zurich Life**

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BSM

standards such as SNMP to monitor health, status and availability. The software will monitor all the elements comprising a business service and alert IT staff when, for example, a slow server threatens to affect the overall performance of that business service.

BSM tools must include advanced correlation and analysis capabilities, meaning the software would be able to relate events from different IT systems and make sense of the data. This type of correlation continues to challenge most vendors because of the variety of events generated and data collected from multiple systems. BSM software also should provide suggestions for fixing the problem, and in an ideal world, the products also could automate some, if not all, of those actions.

For example, if the server supporting a human resources application inexplicably slows down at the same time as the server housing an online ordering application, BSM software would, in real time, tell network managers to address the latter server first because it supports an application more important to the business. The product also might suggest migrating the online ordering application to a more powerful server to prevent future failures.

Lacking business savvy

The concept of linking business priorities to the infrastructure supporting them is valid, yet skeptics wonder if management software vendors are the best folks to tackle this issue. They wonder how these vendors will incorporate business process information into tools that always have been so IT-centric.

"In particularly large enterprise companies where there is a BSM mandate from the powers that be, a

Business services management
key ingredients

Vendors might differ on features in their business services management products, but to be successful all BSM software must include this core technology:

🌶 Correlation technology will let a BSM product compare IT metrics such as network latency, server utilization and application availability against business metrics like the number of orders taken, the length of the sales cycle and the amount of revenue gained.

🌶 Service modeling features will help IT managers work with business units and groups to define how a business service should be monitored and managed by software, and how to measure the business service with IT tools and in IT terms.
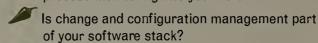
🌶 Automation capabilities will let IT systems kick off alerts, generate trouble tickets and take action to resolve issues. For example, if a server fails, BSM software ideally could automatically transfer an application to another server to ensure the business service continues uninterrupted.

5 BURNING QUESTIONS TO ASK VENDORS ABOUT BUSINESS SERVICES MANAGEMENT

🌶 How do you plan to incorporate business process monitoring into your software?

🌶 Is change and configuration management part of your software stack?

🌶 What experience do you have in business management consulting that would let you help me adequately identify business processes?

🌶 What are you doing to make integration of multiple BSM management tools easier for me?

🌶 What are you doing to make integration between BSM tools and the back-end data sources easier for me?

single tool isn't going to cut it," says Jasmine Noel, principal with Ptak, Noel and Associates. "You need to integrate performance monitoring, analysis, configuration and process tools into a working whole."

Also unclear is how these vendors would help their customers identify critical business processes and services, define them and create policies for them. Industry experts speculate that long-term consulting engagements or multiple tools could be required to reach BSM goals.

Mark Bradley, senior application development analyst at Zurich Life, a business unit of Bank One in Schaumburg, Ill., says he is working to establish consistent service management goals across what used to be three IT departments and three businesses. Bank One merged with JPMorgan Chase earlier this year after acquiring Zurich Life. He says he'd like to see a product that could help him manage business services across multiple units and using multiple tools.

"It would be helpful to have a consistent measurement of what's critical to the business using consistent data across the IT systems," Bradley says. "Every business looks at performance a bit differently, and every IT department prioritizes differently. The challenge is in how to calculate what's critical and then get IT to work with that."

Yet he certainly isn't enthralled with the idea of a multi-year services contract with an IT management vendor to get this type of software up and working. "I would steer clear of any long-term consulting engagements because business decisions need to be made fast," Bradley says.

Getting to BSM nirvana

Of course, management behemoths such as HP and IBM suggest they have all the tools and expertise to get customers to BSM nirvana. Computer Associates and BMC Software also sell what they label as BSM software. And smaller management competitors such as Concord Communications, Managed Objects, Mercury Interactive, Micromuse and Smarts address the effect of IT events on business goals either through service-level agreement monitoring or policy-based management, which involves checking actions against pre-set rules and alerting when policies aren't met. All the products attempt to put a business value on IT events.

Industry watchers remain unconvinced. Despite vendors' claims and product news, industry experts question how well network and systems management software will integrate with business process tools and business intelligence engines — and at what cost.

More on the BSM buzz!

Head to www.nwfusion.com for more on business services management, including:
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Management software in general can run into the millions of dollars. HP's recent BSM addition, OpenView Business Process Insight, alone starts at $190,000. Customers are going to want BSM tools that will make the best of what they have in place. While management vendors can collect data from multiple IT systems, assigning a business value to the data will remain a challenge. Also, to monitor how systems work together to deliver a service and automate corrective actions, integration among management software and business process engines will need improvement.

"The integration points among all these systems is critical for BSM to work," says Stephen Elliot, senior analyst with IDC. "BSM involves a massive amount of data collection across the infrastructure, processes and business systems. Capturing the data and being able to maintain, manage and make sense as to how it relates to the business will challenge many IT shops."

These IT shops are challenged enough in their attempts to define business processes as they relate to IT, Elliot says. Even with the right technology, industry watchers estimate an aggressive, leading-edge shop would need three years to get production-level BSM rolled out. "Getting IT to think in business terms will be a challenge," Elliot adds.

But maybe that's just pessimistic thinking.

At DSIO Auchan, Thibaut uses Managed Objects software to track the performance of business services across 350 stores in multiple countries. The IT team took three months to get its BSM initiative off the ground and now expects a 100-day workload for each new business service added to the system, he says.

On the other hand, Zurich Life's Bradley is moving far slower, while waiting on direction from business unit and upper IT management, he says. He uses Peregrine Systems' help desk software to track IT services, but says he would like to upgrade his management strategy to incorporate more business services. "The momentum is there. We know what needs to be done; we just need management to define alerts and escalations," he says.

Bradley, like many network executives, understands IT exists to support the business, but also must work with business managers to understand the best way to do that.

Thibaut, too, admits the challenge to begin adopting BSM rests with people more than technology.

"It's a change in the organizational structure, business and IT," Thibaut says. "For us, the pain point is in particular a 'human' one. The biggest challenge ... is to make the IT team think about business." ∎

Rebirth for the x86

Once considered the weaker sibling of RISC processors, x86 chips are being re-architected with multi-core processors and 64-bit extensions that promise to extend their enterprise usefulness.   ■ BY ROBERT MCMILLAN

Your basic everyday x86 server doesn't look so average anymore. In fact, with 64-bit extensions on the table and multi-core processors in the works, this venerable PC server is looking downright jazzy.

The x86 rebirth buzz began with Advanced Micro Devices' (AMD) and Intel's move to add 64-bit support to their processors. The 64-bit extensions show up in AMD's Opteron and Intel's Xeon chips. But it grows significantly louder when you throw in the multi-core angle.

Essentially, a multi-core processor gets you two processors on one chip. IBM, for example, offers a dual-core Power5 processor, while Sun has released a dual-core UltraSparc chip. PC vendors are not to be outdone. AMD is developing multi-core processors for servers and high-end workstations, and Intel recently moved up plans to ship dual-core processors for its server and desktop systems. Intel's and AMD's offerings are expected in late 2005.

The core issue

Although it will take years before multi-core designs become pervasive, the fact that they typically are designed to run at lower frequencies that

J.D. KING

burn less power than the latest single-core processors eventually will make data center servers denser than today's single-core systems, says Tom Halfhill, senior analyst with Microprocessor Report.

"The whole idea of having two cores on one chip is that they are more efficient. For the same amount of data center square footage, you can have more processing power crammed in," he says.

But vendors must resolve the thorny issue of software licensing before dual-core processors will achieve mainstream acceptance. As far as applications or the computer's operating systems are concerned, a dual-core processor looks like a two-processor system. But should it be licensed as such? Not according to Scott Wolfe, IT enterprise architect with Boeing Employees Credit Union in Tukwila, Wash.

"We license Oracle per processor. ... So now when we do dual cores, is that two processors?" he asks. "That dual-core processor is not as powerful as two single processors, so now we're paying essentially twice the licensing for less than twice the computer power."

Most vendors, including Microsoft and Novell, have not disclosed how they expect to treat multi-core processor licenses. However, the decision among those already decided on this issue is not uniform. A dual-

core processor will be licensed as if it is two separate chips, as far as Oracle is concerned, but that same processor would require only one license from Red Hat.

While PC software vendors have some time to decide how they'll handle licensing, IDC research director Al Gillen expects most will follow Oracle's lead and license PC multi-core systems as if they are multi-processor machines.

Perhaps the new systems will spur software vendors to reconsider their processor-based pricing models. That's the hope of users like Dave Gallaher, director of IT development for Jefferson County in Golden, Colo. "At some point, I would have to call it the equivalent of counting the lug nuts on a car and using that as the basis of what you pay for the car," he says. He advocates that software vendors move from this model and instead focus on one question in particular: "What's the value of your product?"

An extended approach

With their 64-bit x86 extensions, AMD and Intel have created processors that, while 64-bit capable, also can run all of today's 32-bit PC software out of the box. Because the additional 64-bit extensions, called AMD64 by AMD and Extended Memory 64 Technology by Intel, do not slow the performance of 32-bit software, customers have nothing to lose by adopting the new processors.

Intel and AMD intend to make their 64-bit instructions a standard part of their PC processor offerings. Both companies say the 64-bit extensions will be compatible with each other's products, and with 32-bit x86 chips.

This means that the majority of PC server systems soon will be 64-bit-enabled, says Stuart McRae, manager of IBM's xSeries line of servers. "In the first quarter of next year, virtually everything we ship will be 64-bit-enabled," he says.

IDC's Gillen agrees. "By this time next year, you'll be hard-pressed to find a 32-bit system," he says.

Still, the 64-bit software that will run on these chips is only beginning to emerge. Microsoft recently

> "The whole idea of having two cores on one chip is that they are more efficient. For the same amount of data center square footage you can have more processing power crammed in."
>
> Tom Halfhill, senior analyst, Microprocessor Report

BURNING 5 QUESTIONS TO ASK YOUR SOFTWARE AND SYSTEM VENDORS

Software vendors:

🌶 Do you plan to port your applications to a 64-bit operating system, and what, if any, performance benefits do you expect?

🌶 What are your licensing plans for multi-core processors?

🌶 Will your legacy 32-bit applications run on a 64-bit operating system?

System vendors:

🌶 How will I benefit from buying a multi-core system?

🌶 Why should I buy a multi-core system instead of a multi-processor system?

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Servers

pushed back the release of a production version of Windows for 64-bit extensions until 2005, and vendors see no point in delivering Windows applications before the operating system is ready, analysts say.

For Linux users, 64-bit operating system support already is available from Red Hat and Novell's SuSE Linux. But even on Linux, application support is still in the early stages. Support tends to be confined to open source products such as Postgre-SQL and MySQL, and to high-performance computing applications.

Reducing the RISC

The advent of 64-bit x86 processors will go a long way toward eroding a primary advantage of 64-bit reduced instruction set computing (RISC) systems based on chips such as Sun's UltraSparc and IBM's Power processor.

Because 64-bit applications can process numbers with twice as many binary digits as their 32-bit counterparts, they can have the capacity to address a larger range of system memory. A 32-bit system can't address more than 4G bytes of memory at a time. With 64-bit systems, this limit theoretically jumps to 16 billion gigabytes.

The maximum amount of addressable memory supported by IBM's 64-bit Xeon systems today is 16G bytes, McRae says — far less than the theoretical maximum, but still four times that of 32-bit systems. While this change might not have any impact on an application like Microsoft Word, it will have a big effect on any application that needs to store large amounts of data in memory. Databases, e-mail servers, collaboration software and even access software such as Citrix Systems MetaFrame will benefit from the move to 64 bits, he says.

> ## This is the final death knell for Unix. "Why would you really want to buy a big Unix box when you can have a big Linux box?"
>
> Dave Gallaher, director of IT development, Jefferson County, Colo.

"Customers need to think about which applications are memory-intensive and which ones can get the most bang for the buck by moving to a 64-bit operating system. They're going to get the hardware functionality whether they want it or not," he says.
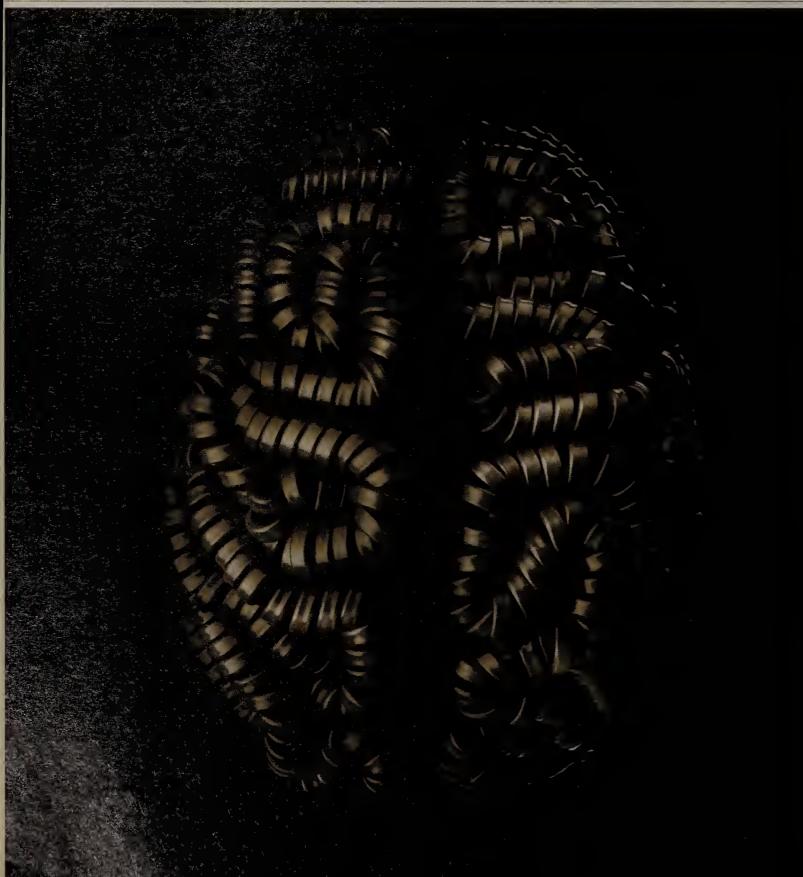
This is the final death knell for Unix, says Gallaher of Jefferson County: "Why would you really want to buy a big Unix box when you can have a big Linux box?"

Jefferson County already has switched much of its IT operations from HP-UX to Linux, and the county is now in the process of evaluating 64-bit systems based on Intel and AMD PC processors, he says. The county has 10 PA-RISC servers right now and will phase out two of them over the next six months, Gallaher says.

However, where the switch to Linux has really had an impact is in the new applications the county has added over the past few years. "We have not written an application to run on HP-UX in years," he says. During that same time, the number of Linux machines at Jefferson County has risen from zero to 70.

For the $3,000 to $5,000 the county would spend per 64-bit PC server, Gallaher says he would get comparable performance from a RISC system that costs 10 times as much. Long live the PC processor.

McMillan is a reporter for the IDG News Service. He can be reached at robert_mcmillan@idg.com.

VoIP vs. VoIQ

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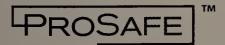
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The grid storage facade

Storage vendors are playing off the buzzy grid computing term to draw attention to their tools for scaling NAS capacity. One analyst analyzes whether this latest storage concept has more than a catchy name. ■ BY JON TOIGO

J.D. KING

Lately the term "grid storage" has crept into the product literature of vendors ranging from storage stalwarts IBM and Network Appliance to numerous start-ups. While grid storage appears to borrow conceptually from grid computing — a set of technologies used to build supercomputers from clusters of inexpensive processors — the similarity ends there. The two have little else to do with each other.

Grid storage refers to two items: a topology for scaling the capacity of network-attached storage (NAS) in response to application requirements, and a technology for enabling and managing a single file system so that it can span an increasing volume of storage.

One way to view grid storage is as a means to scale NAS storage horizontally and vertically while avoiding the problems associated with each.

Currently, scaling horizontally means adding more NAS arrays to a LAN. This works until the number of NAS boxes becomes unmanageable. In a "grid" topology, NAS heads are joined together using clustering technology to create one virtual head. NAS heads are the components containing a thin operating system optimized for Network File System (NFS) protocol support and storage device attachment.

Conversely, the vertical scaling of NAS is accomplished by adding more disk drives to an array. Scalability is affected by NAS file system addressing limits (how many file names you can read and write) and by such physical features as the bandwidth of the interconnect between the NAS head and the back-end disk. In general, the more disk placed behind a NAS head, the greater the likelihood the system will become inefficient because of concentrated load or interconnect saturation.

Grid storage, in theory, attacks these limits by joining NAS heads into highly scalable clusters and by alleviating the constraints of file system address space through the use of an extensible file system.

Who needs grid storage?

Grid storage would be useful to anyone with a large complement of NAS arrays to administer, according to a manager of a national Internet e-mail portal service who asked not to be named. He complains that his current complement of several hundred NAS storage devices from a prominent NAS vendor creates a huge management problem. Managing the capacity on each array requires that he access each array's self-generated status and configuration Web page, which is "like surfing the Web all day." To him, the possibility of one virtual NAS array, created from a cluster of individual arrays, is a management boon.

The development of storage grids clearly is geared toward NAS users today — primarily because NAS vendors are spearheading such efforts. But others might one day benefit from the grid storage concept, particularly those who have unruly Fibre Channel fabrics. Take for example a hospital in northern Virginia with several isolated storage-area network (SAN) islands — the result of uncoordinated storage acquisitions made by various corporate turf lords. Making disparate SANs communicate and share data with each other in the face of non-interoperable switching equipment is a nightmare for the hospital. Conceivably, by using clustered NAS devices serving as gateways and managers of the back-end SANs, the hospital would gain improved capacity, file sharing and management generally.
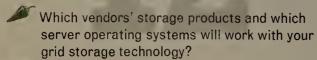
For those organizations with file storage consisting of millions of discrete files, the limitations of current file system address spaces can impose major hurdles for centralized management and capacity efficiency. Including this data into a massively scalable storage grid-based file system would promise more efficient file sharing.

Competition in the making

Established vendors such as Network Appliance and Silicon Graphics (SGI), and newcomers such as Panasas, are working on clustered NAS technologies that sometimes are called grid storage. SGI might be ahead of the game with its application of proprietary server clustering technology to the NAS head, and Panasas has begun shipping a system based on Linux Beowulf clustering. Both companies' products primarily target high-performance computing.

For grid storage, Network Appliance plans to use technology it gained when it acquired Spinnaker Networks in February, says Chris Bennet, a senior

12 BURNING QUESTIONS ABOUT GRID STORAGE

- Which vendors' storage products and which server operating systems will work with your grid storage technology?
- When will grid storage be available?
- Does the strategy require replacing existing file systems?
- Does the strategy require the deployment of new servers to host file namespace services? Will specialized agents need to be deployed on all client systems?
- How much WAN bandwidth is required to make a distributed approach viable?
- Which standards does it support, and who else supports those standards?
- What management tools will you provide?
- How will your grid storage product handle storage allocation and de-allocation?
- How will the solution detect and respond to application demands for storage resources or file access?
- How will file system metadata be managed: Is there a special agent architecture, a replacement file system or some sort of communication between storage platforms themselves?
- What time delays will occur in file directory data in geographically distributed environments?
- How will security be preserved in a universally accessible storage environment?

Grid
continued from page 92

director with the vendor. Network Appliance's challenge is particularly daunting. While the Filer products use a proprietary implementation of the Berkeley Fast File System, the Spinnaker products had used the Andrews File System. The two file systems have fundamental architectural differences that might require a departure from current product design. "Several years will be required to converge the technology at the code-line level," Bennet concedes.
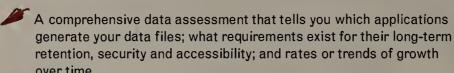
Like competitors, Network Appliance seeks to improve management of multiple physical NAS heads and to create one scalable, synchronized directory. This directory would represent all files stored on all the NAS arrays as the number of arrays is expanded. Here grid storage appears to be less about NAS architecture and more about file sharing.

At IBM's Almaden Research Center, work is proceeding on a self-described grid storage project aimed at creating a "wide-area file sharing" approach, says Leo Luan, research staff manager on IBM's Distributed Storage Tank (DST) project. The objective is to extend the capabilities in a "Storage Tank" — a set of storage technologies IBM rolled out last year that includes virtualization services, file services and centralized management — to meet the needs of large, geographically distributed corporations. Such sprawling companies struggle to replicate and distribute copies of files among their disbursed data centers.

The heart of grid storage is a methodology, whether based on clustered NAS or other distributed storage topologies, to enable synchronized file sharing. IBM is

Getting to grid storage

If you are a large corporation with skyrocketing storage needs, you might be interested in watching for eventual grid storage products. Before going to the vendors for a solution (none exist yet), you will need the following:

- A comprehensive data assessment that tells you which applications generate your data files; what requirements exist for their long-term retention, security and accessibility; and rates or trends of growth over time.

- For those anticipating the inclusion of storage devices located at geographically disbursed locations into a storage grid, you will need to document current WAN interconnect bandwidth and service levels. This will help you determine what enhancements are required to make interconnects serviceable with a grid storage approach.

- A total cost of ownership analysis focused on current data storage to identify the costs associated with the hardware, software and labor overall and with respect to each tier or type of storage you have deployed. You will need this information to see whether a business case exists for going to grid storage when it becomes available.

looking at untapped capabilities in the NFS Version 4 standard to help meet the need. "DST extends to NFS clusters that can be used to build a much larger grid with a single global file namespace across a geographically distributed environment," Luan says.

Making the approach open and standards-based requires a schema for file sharing that is independent of a server's file and operating systems, and that does not require the deployment of a proprietary client on all machines. IBM is working with the Global Grid Forum's File System Working Group because its intent is to produce a standards-based Lightweight Directory Access Protocol server to act as the master namespace server.

Industry observers disagree about the timeframe for, and even the likelihood of, a truly vendor-agnostic grid

storage solution reaching the market. Some believe that the underlying technologies for global file namespace management, including virtualization and synchronized replication, are simply too immature or too prone to vendor infighting to be ready for prime time. Others take exception with the disruption inherent in most current extensible file systems, which commonly require either the modification or wholesale replacement of server file systems. To be successful, grid storage must be non-disruptive and transparent to users and applications.

Rival technologies

Yet others question the relevance of such complex grid storage architectures in the face of rival technologies. For example, global namespace servers, such as NuView's StorageX, and networked file sharing appliances, such as Tacit Networks' Ishared, deploy without interfering with existing file systems. They also provide file accessibility and synchronization services for wide-area file sharing that users might find perform well enough for their needs.

The death knell for grid storage ultimately might result from a failure to define the term. Not only is there the confusion surrounding use of the word "grid," but there also is a similarity between much of the grid storage discussion and the description of storage utilities in 2003 — and of SANs the year before. Without a common industry definition for the term, it will remain more "marketecure" than architecture.

Toigo is CEO of Toigo Partners International, a technology analysis firm. He can be reached at jtoigo @intnet.net.

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Calling for managed VoIP?

Carriers are talking up their new hosted IP voice services, but at this point most enterprise users are doing more listening than buying. ■ BY TERRY SWEENEY

Sean Burke

didn't shed any tears after giving the heave-ho earlier this year to a frame relay network that had been carrying phone calls and data transmissions. Burke, network director for advertising and marketing firm InChord Communications in Columbus, Ohio, traded up to an IP-based VPN that now carries IP voice, data and even a little videoconferencing among seven domestic sites and an office in London. Now InChord pays for T-1 access to AT&T's IP backbone rather than for the MCI frame relay service. What he and other users are moving toward are essentially managed VoIP services.

Burke now pockets roughly $4,000 per month in savings. That's no small savings, especially when considered along with the greater reliability of the VPN over the frame relay net, Burke says.

"When we move into a new building, we can cut 40% off our wiring costs by dropping only [Category] 5 wire now," Burke adds. "Not having to pay the telephone company for moves, adds and changes is also great — we can do those in minutes" with the Cisco IP phones.

What's missing is rich management from the carrier, particularly QoS capabilities for prioritizing band-width based on the application, time of day or user status. "End-to-end QoS is really important to us to get from a carrier," Burke says. It would save him from monitoring traffic levels at seven remote sites before injecting IP voice into the network.

What Burke and other users really crave is a fully managed VoIP service that would take the onus of worry off their shoulders.

With such a service, a carrier provides the premises-based access device — a DSL or cable modem, remote-access router, even a multi-protocol multiplexer — for packetizing voice before it enters the wide area. Carriers also may bundle in IP phone handsets or the software for turning laptops and PCs into voice terminals. And, the managed service provider should offer service-level agreements that guarantee a certain percentage of uptime or minimum thresholds of downtime.

Managed VoIP portfolios, from incumbent carriers and specialty providers, offer support for audioconferencing, videoconferencing, presence, follow-me/find-me and other voice-related applications. Tom Roche, executive director of advanced products and services for the enterprise solutions group at Verizon, even suggests that most customers won't be able to fully benefit from VoIP without a carrier's help. "An IP network needs to be constantly managed to be sure it's at peak performance and efficiency," he says.

Verizon, like AT&T, plans to launch managed VoIP within the next six months.

But the sales pitch for managed VoIP has a disconcertingly familiar ring of convergence to it. IT managers have heard it before for ISDN, ATM and frame relay. One pipe, one protocol, one network, one management interface, one bill. Mix voice, data and video traffic in ways that can be customized to your requirements. Save gobs of money in the process, and streamline internal support requirements.

Perhaps it's no surprise, then, that enterprise users aren't yet showing as much enthusiasm for managed VoIP as you'd think from the carrier buzz. Raw bandwidth is really what many enterprise users want from their carriers, says Robin Gareiss, principal research officer with Nemertes Research. "Only a small percentage of the 55 companies we surveyed say they want a managed service," she adds, and with the voice business so tough these days, "many carriers

J.D. KING

The managed VoIP menu

A sampling of some currently available VoIP service options.

Service type	Providers	Requirements	Approximate monthly cost
Voice as VPN	AT&T, SBC, Qwest, MCI, Verizon and others	• VPN client software • IP phones • Broadband connectivity • Ability to manage QoS on a site-by-site basis	$2,000 per site
Managed VoIP	Virtela	• Broadband connectivity • IP phones	$200 to $350 per site
Hosted IP telephony	CallTower	• Broadband connectivity • IP phones	$70 per seat

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invent

6 BURNING QUESTIONS TO ASK MANAGED VOIP PROVIDERS

- What QoS features do you offer? And do you provide end-to-end QoS?
- What premises gear do you provide?
- Can we use any vendor's IP handsets, and can users program their own phones?
- Can we do our moves, adds and changes?
- What can we expect to spend per seat to get local calling, long-distance, Internet access, follow me/find me, unified messaging and audioconferencing?
- How will we monitor the health of broadband links and the WAN performance?

VoIP

are really kind of challenged as to what they should be doing with VoIP."

A starting point for some has been the small to midsize business (SMB) or branch-office markets. Those are the targets of specialized service providers such as Virtela Communications and CallTower, for example.

The strategy makes sense, as SMBs don't want to undertake the daunting task of buying, installing and managing a big piece of equipment, says Danny Klein, a senior analyst at The Yankee Group. "Service providers are giving them options to spending, translating it from a capital expenditure to an operational expense. A hosted solution makes it easier to budget," he says. "It also allows them to grow the telecom infrastructure as their business needs grow. As they add or delete employees, they add or delete lines."

That rationale made sense to Contract Office Group (COG), a $25 million office furniture dealer in Milpitas, Calif., when phasing out its 15-year-old phone system. "Vendors were telling us it would cost $60,000 for a new system," recalls Carol Fagan, a manager with the company. "As a small business, we couldn't afford that kind of cash outlay. Plus then at the end of 10 years, you have an outdated system that can't be upgraded."

The furniture dealer contracted with CallTower for consolidated local, long-distance and Internet access. Call-Tower, partnered with Cisco as part of its Architecture for Voice Video and Integrated Data IP telephony program, ships handsets to COG's two Bay Area offices as needed. Features such as unified messaging, four-digit

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dialing between offices and follow-me/find-me are hosted by CallTower, and easy to access, program and use, Fagan says.

With about 45 users, Fagan says she spends an average of $72 per seat, per month, for the managed service. While the fixed-cost aspect is a big plus to her, Fagan also really likes the 40% reduction in monthly telecom charges from the company's old solution.

Network executives at larger corporations will want to keep their eyes on leading-edge deployments such as the one SBC and Ford Motor announced last week. This will become SBC's largest ever managed IP telephony deal, the provider says. With it, SBC will design Ford's VoIP network at 111 sites, install the premises equipment and employ on-site engineers to manage the service. (See related story, www. nwfusion.com, DocFinder: 3939.)

While managed services aren't for every company, analysts note that service providers can roll out new services or upgrades more quickly than an IP PBX vendor, and without the associated costs of patching. The companies that will be purchasing hosted IP solutions will have different requirements than those who would purchase an IP PBX, Klein says.

"There are lots of advantages to centralizing applications in the service provider network rather than on-site for SMBs and branch offices of large enterprises," Klein says. And there will always be room for hybrid solutions. "Many service providers will start to offer both. VoIP will be more of a solutions-sell approach rather than individual point-products from a portfolio."

Sweeney is a freelance writer in Los Angeles. He can be reached at terry @tsweeney.com.

Signature Sign✎Off

The heat is on

These three technologies are sparking renewed industry attention.

■ BY JULIE BORT

Message archiving

If you were to stand at the intersection of "electronic communication" and "corporate compliance" you would see a large uncovered manhole — the black hole of "message retention." Most corporations' ability to sort, retain, locate and mine messages hasn't caught up with regulatory requirements and business demands.

But that's changing. Message archiving systems are going to be the next big thing in e-mail and instant messaging, if you believe word on the street. True, tools that catalog e-mails have been around for a while — mostly used for e-mail management and archiving to lower-cost media, and occasionally to mine content for knowledge management. However, corporations will adopt more advanced electronic communication archiving and indexing tools en masse, and soon.

"The worldwide message archiving market will grow from $197 million in 2003, peaking in 2006 at $994 million, with a CAGR of 38%. There will then be a decline in revenues in 2007 to $917 million, continuing down to $660 million in 2008," says Erica Rugullies, an analyst with Forrester Research. "Demand will grow ... based on new regulations, more companies facing legal discovery issues and growing mailbox environment costs," she says.

Thanks to Sarbanes-Oxley, the Health Insurance Portability and Accountability Act, and other government initiatives, corporations might be forced to locate messages by content and then hand them over for legal discovery. While most companies back up their e-mail stores, few index them at the same time. Fewer still have any system in place to back up IMs or to prevent users from deleting e-mails from personal in-boxes. Most e-mail management systems automatically delete messages by date, without concern to content.

A $2.7 million judgment against Philip Morris U.S.A. for deleting e-mail is being looked on by the messaging industry as a test case for e-mail retention liability. The judgment, issued in July by the U.S. District Court for the District of Columbia, fined Philip Morris for deleting e-mail more than two months old, according to court documents. In 1999, the court ordered Philip Morris to preserve "all documents and other records" that might contain information about a government case pending against the company, the motion said. In 2002, the routine deletions were discovered. While Philip Morris has protested the ruling, the message is clear — if a company is told to turn over messages pertaining to a specific topic, it had better be able to locate all of them.

Vendors see this as an incredible opportunity, and dozens are coming out with message-archiving tools and services. These include e-mail archiving specialists such as iLumin Software Services and Zantaz; document management service vendors such as Iron Mountain; enterprise content management firms such as Open Text (through its acquisition of e-mail archiving specialist IXOS Software), EMC (through its acquisitions of Documentum and Legato Systems), and IBM.

Such products keep e-mail and IMs stored centrally so they can be searched quickly. They also let messages be stored, managed and retrieved by content, among other identifiers. Compliance managers can use them to review people's e-mail on a random basis, or per some sort of lexicon, to ensure compliance. A company can expect to pay between $25 and $100 per user, depending on volume and features.

Product information management

Does the IT world need yet another form of information management? When it comes to coping with structured and unstructured product information, apparently so. "Everyone and their brother is getting into" product information management (PIM), Rugullies says. Vendors include specialists such as Flow Systems, Full Degree, Full Tilt, Riversand Technologies, Stibo Catalog and Velosel, and larger players such as IBM and SAP. In May, IBM released WebSphere Product Center Version 5, the offspring of its Trigo Technologies acquisition. SAP countered in July by buying A2i, positioned in the nascent PIM industry as Trigo's major rival. SAP says it aims to integrate A2i's PIM features into its NetWeaver application platform for fall availability.

Other vendors clamoring to add PIM to their marketing spiel include supply-chain management companies such as i2 Technologies and JDA Software Group, with its June acquisition of QRS, and electronic data interchange, e-commerce and catalog vendors. Rugullies anticipates more mega-sized software vendors to enter the market via acquisitions.

So what's the big deal about PIM — is it just another name for the enterprise content management? Not exactly, Rugullies says. These offerings are the next generation of the product catalog software spawned during the business-to-business mania days. They are unique from other content management systems in that they combine the ability to publish product information to online and printed media. They also function as a central repository for both structured data (such as stock numbers and item measurements) and unstructured data (information sheets, video clips, long descriptions).

For companies in need, PIM systems offer much to like. They can cull data from scores of sources, clean and standardize the data, designate gold sources of clean data, and easily make this information available to other sources through APIs, XML and the like, Rugullies says. The first wave of adopters are manufacturers and distributors — companies with hefty product catalogs. But financial services firms, such as credit card providers, also are expected to gravitate toward PIM. From there, other marketers of many highly customized products or services that produce both online and printed documentation likely will follow.

Grid middleware

The mainframe world is abuzz over the term "grid middleware." But some experts note that the term is really just another name for grid software, as it previously has been called. All grid software is middleware, stitching together disparate CPUs so that they can operate as one supercomputer.

"Adoption of the term 'grid middleware' doesn't signify a grand new development, but is simply a new name for an emerging concept," says Ian Foster, professor, national lab scientist and author of *The Grid: Blueprint for a New Computing Infrastructure*.

The term grid middleware has been given cache lately because it has been carted out to label highly autonomous grid systems — which most grid systems are. People seem to better grasp what grid software is when the term "middleware" is attached.

"Anyone that has software that vaguely relates to distributed computing is calling it 'grid' and now 'grid middleware' ... what is new is the sense of recognition that one needs a distinct set of grid software. And the work that's going on to develop that software and the standards on which grids will be built is new, too," Foster says.

While grid software is still an emerging technology and worthy of buzz, the truly exciting stuff is going on in the world of standards for interoperable grid middleware, Foster says. Some folks in the grid community are "taking concepts and standards from Web services and adding to them to support the issues that arise when performing resource sharing, federated sharing," he says.

One such standards initiative, the Open Grid Services Architecture (OGSA), in which Foster is involved, is working on exactly that task. OGSA is writing a group of specifications that converge grid and Web services. The Web Services Resource Framework is one result, generated from an effort between the Globus Alliance, IBM, HP and others, with a first version released in April. The framework, which consists of a family of specifications, deals in large part with modifying accepted Web services protocols so that they maintain state. Grids require maintenance of state.

While such standards efforts are young, some vendors are announcing support. For instance, IBM's Grid Toolbox V3 for Linux on xSeries supports OGSA standards, IBM says. ■

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IT Careers: Being Brave Part of Professional Development

Having a mentor or role model is as critical for professionals as it is for kids. That's one reason the Society for the Advancement of Chicanos and Native Americans in Science (SACNAS) launched a multi-year project to record autobiographies for some of the nation's leading Native American and Hispanic professionals in the areas of math, science and technology. A quick scan of the life stories points to careers that range from seismologist to zoologist, from surgeon to statistician.

With support from the Sloan Foundation, the National Institutes of Health and the Verizon Foundation, SACNAS gathered together women and men from a variety of backgrounds, recording how they established their careers. Just as telling, however, is what they've found once in the workplace.

Dr. Ermelinda DeLaVina's story is one typical of many Hispanic professionals: she is a first generation college graduate, she came from a poor household, she had a teacher who saw more in her than she did herself and who stayed interested in her long after she left his classroom, and she had ambition.

"Generally, the best advice is to have a willingness to try something new, to be brave about it," says DeLaVina who, in addition to being an associate professor in the Computer Science and Mathematics Department at University of Houston, helped develop a computer program known as Graffiti. The program generates conjectures in math, similar to how a scientific hypothesis will be proven. If a conjecture is proven true, it's a theorem. If it's false, the mathematical statement process begins again. Since the graduate research project, DeLaVina has continued work, creating Graffiti.pc.

DeLaVina, who dropped out of undergraduate school after one year and returned later to go on to doctoral studies, says her student base today is diverse – about 25% Hispanic, 25% African American, 25% international and 25% traditional Anglo. "One of the difficulties for minorities is that we may feel that we are very different or perhaps inadequate," she says. "We work to help students understand that they may look different, but that does not mean they are less capable. I could make myself stand out as being different, but when it comes to my area of expertise, I'm really not. When we sit at lunch, we talk about our dreams, goals and ambitions. The person I have the most in common with is a white man who also grew up poor.

"There are external forces that can make you feel different, but the point is to not let yourself become different" in terms of what you are doing, she adds.

In addition to being brave, DeLaVina stresses the importance of ongoing learning, particularly in areas outside of math, computer science and technology. "Academically that may mean choosing a minor that will distinguish you from others," she says. "We used to say that this made you a more interesting person. In this day and age, we know it's important to what you actually do."

For DeLaVina the next career steps are long-term but clear. She wants to clean up the interface on Graffiti, which she originally developed while learning Visual Basic, and see it launched and used by a wider audience. And, she wants to be a full professor – a process requiring at least six more years of research and publishing before consideration.

For more information about IT Careers advertising, please call: 800.762.2977
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BackSpin   Mark Gibbs

Today's menu: Spam and Wine

Appetizer: Well, we're in the middle of the Network World Strategy & Management for Messaging and Spam tour and this week finds us in Dallas on Tuesday and Denver on Thursday so, as it has been said, come on down (although you should register first — go to www.nwfusion.com, DocFinder: 3941).

First course: A question that came up in all these events is, has the CAN-SPAM Act had any effect on the spam problem? Let's see, how can I put this? No.

The government has allocated such limited resources to enforcement that complaints don't even get acknowledged let alone any large-scale action being taken against spammers.

Side salad: On the other hand, the government does seem to have enough resources to go through the whole rigmarole of fining CBS $550,000 for Janet Jackson's Super Bowl "wardrobe malfunction."

Doesn't it strike you as bizarre and illogical that CBS should be held responsible for something done by the NFL? Doesn't it strike you as even more bizarre that the fine is for a nipple? Have we got so delicate that the exposure of a nipple is so outrageous that it needs to be prosecuted? Sure, it wasn't the smartest or the most refined of exhibitions, but really, is the American public more disturbed by a nipple than pictures of mangled bodies on the evening news? But I digress ....

Second course: But back to spam — more companies than ever seem willing to cross the line by sending their pitches uninvited and not stopping when you follow their unsubscribe instructions. They won't stop even when you telephone them!

Among my current personal bête noirs for this kind of behavior are Diversity Business, Dotster and Wireless Dealer Network. These companies are committed to spamming me, and they will not stop.

I can understand anonymous losers pushing pills and selling trash, but how can verifiable and contactable businesses behave so ignorantly?

Third course: A topic I really want to discuss this week was the recent announcement by the Australian Open Source Industry Association (OSIA) that Windows Emulator (Wine) will solve everything (DocFinder: 3942).

Wine, according to the Wine FAQ (DocFinder: 3943), "is a program which allows the operation of DOS and MS Windows programs (Windows 3.X and Win32 executables) on Unix."

Wine has been moderately successful running Windows applications, but not all Win32 programs will execute happily (or at all) under Wine. The OSIA's pitch was that PC vendors should contribute to the development of Wine in their own self-interest.

The argument is that PC vendors' margins are extremely thin because of the overhead cost of OEMing Windows. The OSIA pointed out that hardware commoditization has greatly benefited Microsoft at the expense of hardware vendors.

Because the market pressure on hardware prices is relentless, the OSIA suggests that to ensure that PC manufacturers continue to make reasonable or indeed any margins they should join the open source movement to make Wine complete and robust.

It is an interesting idea. Combine WINE with a well-engineered user interface and simplified administration for the underlying *nix and you've got the ideal formula. We could see complete PC systems for perhaps $300.

Just think, given such a jumping-off point, PC software vendors would be able to make the jump to the *nix world to gain extra performance.

I would like to think the interest is there, but it would take some major players to get the weight of the industry behind the project.

Dessert: I'd be interested to hear three things: Regarding spam, which companies are dogging you? With Wine, do you think the project as proposed by the OSIA stands a chance? And finally, what did you think of your meal?

Send your tips to backspin@gibbs.com.

'NetBuzz   News, insights, opinions and oddities

By Paul McNamara

How the 'Net might get Kerry elected

They aren't calling it "vote swapping" this time around, having prudently decided that "vote pairing" will be more palatable for the squeamish who cling to the myth that one-man-one-vote applies to our presidential elections.

The practice, unthinkable prior to the ubiquitous Internet, seeks to match supporters of Democratic Sen. John Kerry who live in states where the outcome is all but preordained — think Texas and Massachusetts — with backers of Green Party candidate David Cobb and Nihilist Party candidate Ralph Nader who live in hotly contested states such as Florida and Ohio. The informal arrangement between these Web buddies will be simple: The Cobb or Nader supporter agrees to vote for Kerry where that vote might matter in exchange for the Kerry supporter agreeing to vote for Cobb or Nader where doing so definitely won't. Most important is that the agreement advances their mutual goal of denying President Bush a second term.

They'll also be thumbing their noses at the Electoral College, which should have been thumbed out of existence long before the sad spectacle that was swearing in a president who lost the election by a half-million votes.

You might recall that during the waning days of the 2000 campaign, a smattering of these "pairing" sites popped up across the 'Net, including NaderTrader.org, WinWincampaign.org, Voteexchange2000.com, voteexchange.org and votetrader. org. The sites attracted a few days' worth of media debate, the wrath of Republican elections officials, and about 36,000 individuals who expressed their willingness to vote tactically through a gentleman's agreement. (What they actually did in the booth is anybody's guess, of course.)

Well, the political matchmakers are at it again, only this time they have pooled their resources into a single site — www.votepair.org — that went live last week. They've had four years to plot strategy — tactical, technical, legal and marketing — and, according to the organizers I spoke with, they are hunkered down for a raucous battle against those who object to the pairing practice and/or support the president.

First things first: Could Web-based vote-pairing on behalf of Kerry actually swing the election in his favor where it fell short for Al Gore?

Absolutely. After all the flying legal briefs had settled in 2000, Florida's 27 electoral votes were assigned to Bush on the basis of about 500 ballots, give or take a hanging chad; New Mexico's five electoral votes went to Gore by a similarly slim margin. Organizers of VotePair say 1,400 Floridians participated in the swapping sites four years ago. Had 2,000 done so, President Gore might be running for re-election. Given the head start on this year's pairing effort vs. four years ago — and the immense nationwide interest in this race — it's hard to imagine there won't be a far greater number of pairing participants this time around.

Web site security is a concern, of course, and organizers are understandably reluctant to discuss their defenses in detail . . . they insist they have it covered.

As for non-technical monkeying with the movement? These are not likely to be effective. Yes, Bush backers could fraudulently register on the site as either Kerry partisans or Nader/Cobb supporters, but doing so will accomplish nothing of consequence (see VotePair's FAQ page for a full explanation).

Legal challenges are all but certain, too, says Mark Randazza, a First Amendment lawyer in Florida who's advising VotePair. Those mounted four years ago managed to scare off a few of the political matchmakers, but the challenges established no legal precedents for the simple reason that the practice is perfectly legal. Expect more huffing and puffing from Republican election officials, but bluster alone won't get the organizers to back down this time.

"There are enough attorneys like myself who are spoiling for a fight on this issue," Randazza says.

And a fight they will get.

Feel free to pair your opinion with this address: buzz@nww.com.

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